

Vol. XXIV **MOTOR BOATING** No. 1

IF you should ask me, I would call this a big number—big in every way, the biggest July issue ever printed by any similar publication—big in features—big in entertainment—big in instruction—and of course, big in value.

There are articles on "How to Choose and Purchase a Motor Boat," which tell you the best way to go about buying a craft; but if you prefer to build your own boat, there is an article on "Starting Correctly to Build," and another on the "Possibilities of Standardization," while for the man who has a boat already in commission there are a lot of helpful hints in "What Is the Power of Your Motor?", "Keeping the Boat Free of Bilge Water," "The Best Arrangement for a 32-Foot Cruiser," "Hints on Keeping the Motor in Shape," "Compass Errors Simplified," "A Rudder Which Acts as a Reverse Gear."

If you are not interested in buying, building or even main-

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taining a craft, then you will surely be interested in the inside story of how airplanes are launched from motor boats. It's a thriller. And there is a good motor boating war story in "And the Soldiers Called Her Slum." Then there are two articles explaining the present status of those two annual classics of the motor boat world under the heading of "Two Important Long-Distance Races," wherein is given the news of the New York Athletic Club's tenth annual motor boat race to Block Island and the Delaware River Yacht Racing Association's Championship Cruiser Race. There is a story about the activities of the motor boatmen of the South in "The Homing Pigeons Are Returning," which deals with post bellum boating. The Columbia Yacht Club, of New York, among the most important in the country, opened its season with formal ceremonies. You will find an account of this here. The title is quite descriptive in "Unusual Features in Zumbrota," and there are a host of other features. All in all, it's a regular whale of a number.—CHARLES F. CHAPMAN, Editor.

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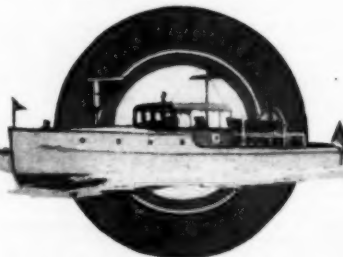
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MOTOR BOATING



Whether your hobby leans toward a husky cruiser or an auxiliary there is a type which will suit your wants

How to Choose and Purchase a Motor Boat

The Way to Decide Upon the Size and Type of Craft Which Will Give the Best Results and Most Satisfactory Service—Several Factors Which Must Be Given Consideration from the Viewpoint of Practical Experience

By Stillman Taylor

YOU can buy a good boat well designed, soundly constructed and of fine finish, powered with a quiet running and dependable engine. And you can purchase it in one of several ways. Buying a boat is after all much like buying other merchandise of the more expensive kinds and the same careful discrimination is needed to invest the purchase price to the best advantage. Boats are bulky and of comparatively heavy weight and only the smallest and lightest craft, such as canoes, can be shown in the sporting goods departments of stores. The only reason why it is more difficult to purchase a motor boat than a motor car, is because there are no boat salesrooms conveniently located in shopping centers. Every large city has its "automobile row" but the motor boat is less prominently and conveniently displayed. Every builder, of course, issues illustrated catalogs and you can find much interesting and reliable information by sending for this free lit-

erature, but to examine the boats you must visit the shops where they are made. With marine engines it is more convenient to see the product which interests you, because many engine manufacturers have salesrooms or agencies in many of the larger cities where all the different models of their line are upon exhibition.

When the prospective buyer knows the kind of a boat which will best fulfil his requirements, the problem is

simply a matter of purchase. But many new members join the large and growing motor boat fleet each year, possessed with a keen desire to enjoy this world-wide sport but who lack experience to judge the relative merits and uses of the different types of craft. Unfortunately there is no standard price by which to judge the value of a boat as the purchaser is able to check up the various makes of motor cars. A good boat can be purchased from \$150 to \$5,000 and upward and the purchaser

Photograph by Jos. N. Pearce



The express cruiser of today is a finished product. There is no doubt as to its reliability

can obtain full boat value at any amount he may care to pay. There are many things which enter into the cost of a boat and the price should not be the only consideration but emphasis should be given to the value of high-grade workmanship, which not only adds to the service of a motor boat but is a big asset whenever you decide to dispose of it.

Many who purchase a second, third or fourth motor boat have ideas of their own on the boat layout and some prefer to have a boat built from the original plan of a naval architect. This method of buying a boat is naturally the most expensive and the average man will find it more advantageous to buy a duplicate model of a craft which has proven a success and improved from time to time precisely as motor cars are refined. These stock boats, built in a wide variety of types and variations of types by different builders, are recognized as standard designs and practically all the larger builders offer a good selection. There are specialists in boat building as well as in other lines and unless your requirements call for an unusual craft, you will have no difficulty in finding a standard stock boat among the many models featured by the most reliable boat builders.

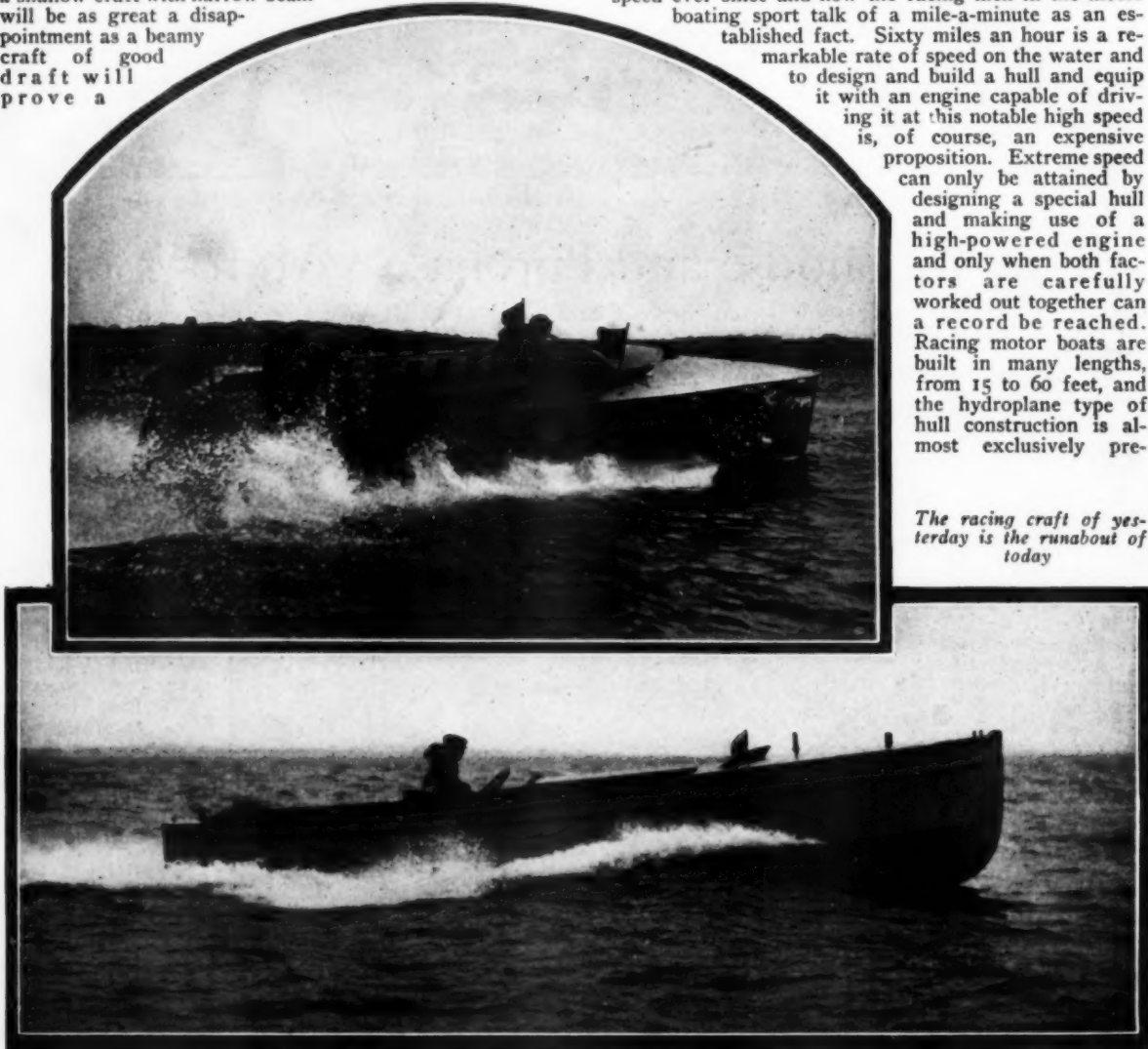
To obtain the most pleasure from motor boating do not overlook the importance of picking out a boat designed for the particular use you wish it for. A boat may be a very fine one of its kind but it will not fully measure up to your expectations if it is not of the particular type best adapted for your use. The requirements of motor boatmen are very diverse. If you want a craft for rough water use, a shallow craft with narrow beam will be as great a disappointment as a beamy craft of good draft will prove a

pleasure—for each are designed for the one best purpose and cannot be used so satisfactorily under opposite conditions. For smooth water and in sheltered waters the smaller motor boats made in large numbers from stock models are especially designed for this enjoyable phase of boating and are more satisfactory than when used on rough water. As a boat will appear much larger out of water than when launched the inexperienced man is very likely to regard a 25-footer as a big boat but may later on modify or change his opinion after becoming familiar with his craft on the water. The amount which you are willing to spend will naturally govern the size of the boat to be purchased but it is always well to remember, that if you do not care to invest enough to own a big classy boat, you can purchase a good small craft and enjoy all the wholesome fun of motor boating, for all phases of the sport are enjoyable and well worth while. In purchasing a low-priced boat the best advice I can give is to select a plainly finished craft rather than a highly finished boat. By acting on this sensible plan you will spend all your money where it counts the most—in owning a well-built hull and a dependable engine and invest the minimum in fancy decorations.

High-Speed Racing Motor Boats

When a speed of 30 miles an hour was made by a motor boat back in 1907, it was considered a remarkable demonstration. And so it was at that time, but the speed pendulum has been steadily swinging toward a higher rate of speed ever since and now the racing men in the motor boating sport talk of a mile-a-minute as an established fact. Sixty miles an hour is a remarkable rate of speed on the water and to design and build a hull and equip it with an engine capable of driving it at this notable high speed is, of course, an expensive proposition. Extreme speed can only be attained by designing a special hull and making use of a high-powered engine and only when both factors are carefully worked out together can a record be reached. Racing motor boats are built in many lengths, from 15 to 60 feet, and the hydroplane type of hull construction is almost exclusively pre-

The racing craft of yesterday is the runabout of today



The V-bottom runabout with speeds up to 30 or 35 miles per hour is highly popular this year

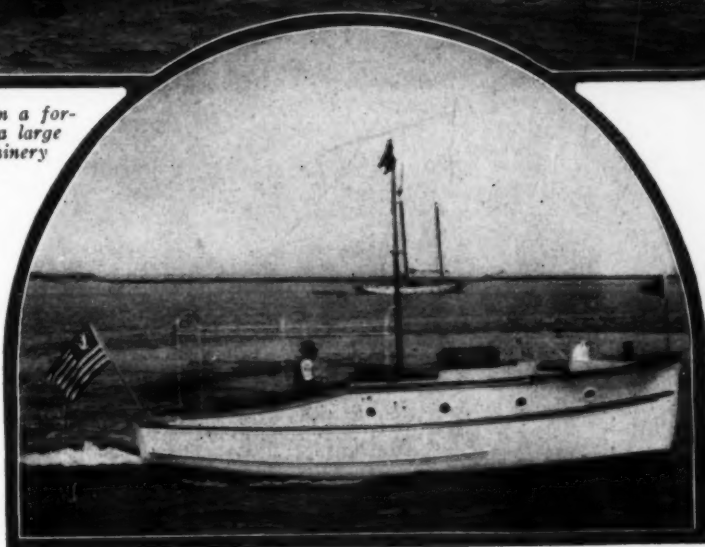


Round-bottom runabouts with the motor in a forward compartment entirely closed in and a large cockpit aft away from the spray and machinery is an ideal outfit

ferred, giving a speed of from 30 to 60 miles an hour.

Motor boat racing is an exciting sport and one that appeals to many men, just as motor car racing and flying will only satisfy those who like the thrill of traveling at a fast clip. The maximum speed must necessarily always remain more or less expensive but motor boatmen can enjoy racing by purchasing a racing boat in one of several classes. With a moderate investment one can own a fast boat in its particular class and if several boats of the one design are brought together in a contest, the skippers of these boats may enjoy all the pleasures of racing and are not likely to complain for lack of excitement. The possibilities of the one-design class of motor boats are in no way less limited than that of sailing craft. The small one-design boats of the star, butterfly, and other classes, have done much to promote the purely amateur side of the sport—sport for the sake of sport, and many hundreds of men and women have found enjoyment in matching their skill in handling the boat against that of an opponent. A race between several one-design motor boats manned by amateurs is one of our best competitive sports and one that possesses plenty of action, even when the contesting boats are 16-footers and powered with 10 or 12 h.p. engines.

Any kind of a boat can be used for racing but a racing motor boat is an out-and-out speed boat and everything is sacrificed for speed and the boat is naturally only suitable for fast traveling upon smooth water. In other words, a racing craft is an extreme and highly refined type of motor boat, unsatisfactory for any other use but remarkably efficient for the purpose for which it has been designed. You can purchase an 18-foot racing canoe with 10 or 12 h.p. engine and obtain the maximum speed at which a boat of this particular type can be driven. You can buy a 20-foot monoplane like the famous racing motor boat, "Tech Jr.," equip it with a 225-250 h.p. high-speed engine and get a speed of 54 miles an hour or better. And you can own a 28-foot racing boat with a beam of 4 feet, equip the clean hull with a 45 h.p. engine and possibly be content with a moderate speed of 25 miles an hour. The 18-foot racing canoe is as much a racing craft as "Miss Detroit," which made a speed of over 56 miles an hour, and plenty of other fast racing boats could be mentioned. If motor boat racing appeals to you as the most enjoyable phase of the sport, there is no reason at all why you cannot and should not participate in it, at a modest speed in a comparatively inex-



Cruisers as small as 25 feet in length, seaworthy in all kinds of weather and large enough for an extended cruise can be had

pensive racer or at the highest possible speed in the finest racing hull that can be designed and built and powered regardless of expense. But if you happen to fall within that large class who wish to indulge in the pleasure of getting outdoors on the water and desire good speed with comfort and safety and do not care especially about racing, do not pick out a racing type of motor boat, because there is another type which has been especially designed and developed to exactly fulfil this second phase of motor boating.

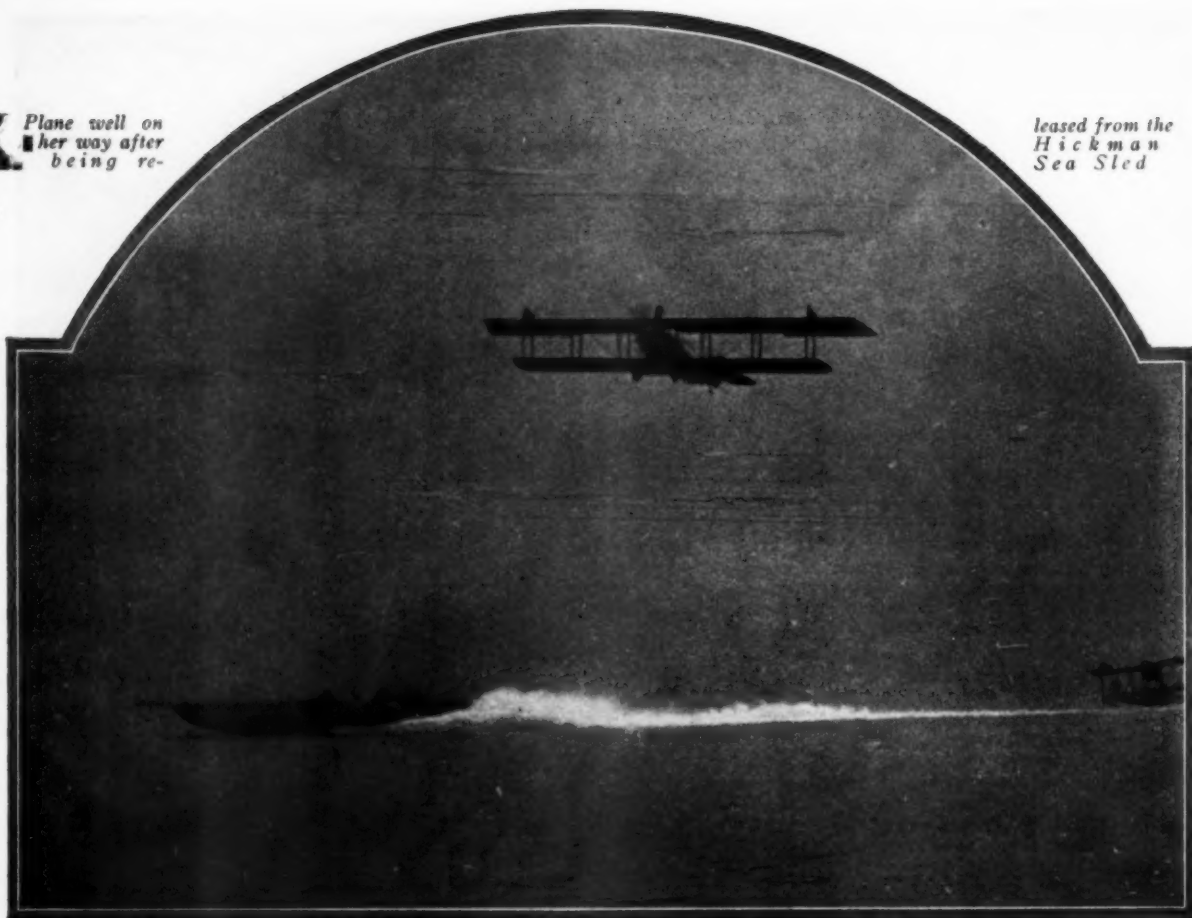
The Fast Motor Boat of the Runabout Type

Very many outdoor loving persons who have been enthusiastic boatmen for years, owning different boats from time to time, have never cared to buy a racing boat. As thousands of touring automobiles are sold to one racing car, much the same proportion of sales is found in the boat market. More automobiles are sold and used for short pleasure rides after the day's work and on Sundays and holidays, than for all other recreational uses. This is the largest field for the pleasure car and it is likewise the largest field for the runabout type of boat which corresponds to the most popular type of motor car. The speedy motor boat of the runabout type is in many respects the ideal motor boat, because it best measures up to the ideas of the greatest number of people who desire a boat for everyday use as a vehicle for convenience and recreation. The greatest mark of distinction of this type in comparison with other motor craft, lies in the design, with the motor installed forward in a separate compartment, and with the

(Continued on page 82)

Plane well on
her way after
being re-

leased from the
Hickman
Sea Sled



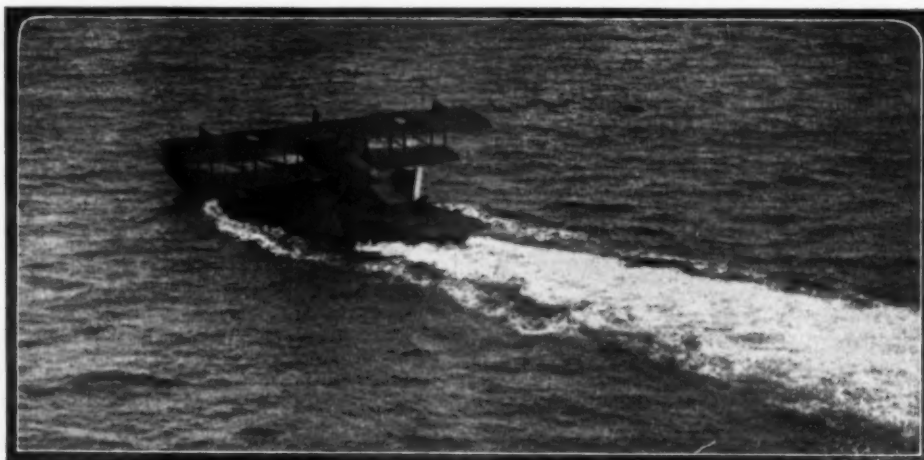
Launching Airplanes from Motor Craft

Another War Secret Revealed—Navy and Army Had Planned to Attack Coastal and Inland Cities of Northern Germany with Land Airplanes Launched from Sea Sleds Near the Enemy's Coast

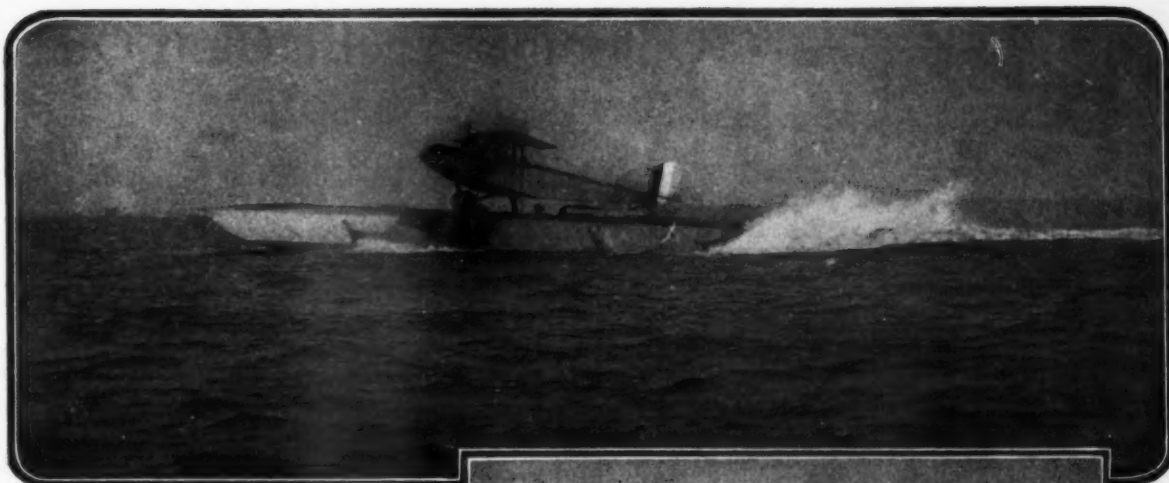
HAD the war lasted just a few months longer Americans would have been thrilled by learning that American land planes launched from motor boats had bombed the coastal and inland cities of Northern Germany, for such was the plan of the Navy Department as now

revealed for the first time. Since the armistice has been signed the American Government has revealed many jealously guarded secrets of which the public had been kept in ignorance. The military authorities had hit upon the novel plan of using Hickman Sea Sleds, manufactured

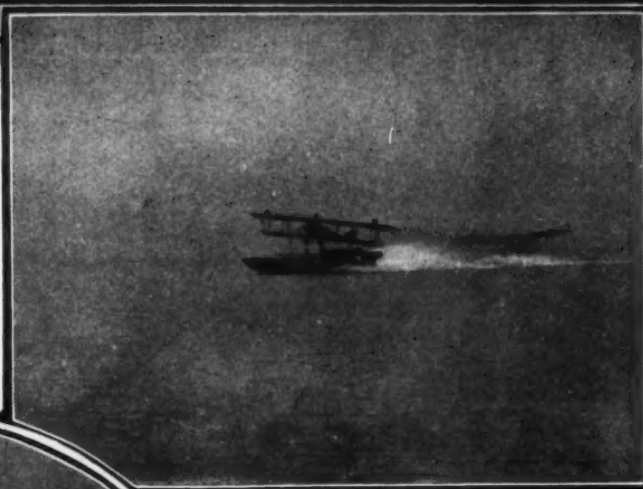
Sea Sled
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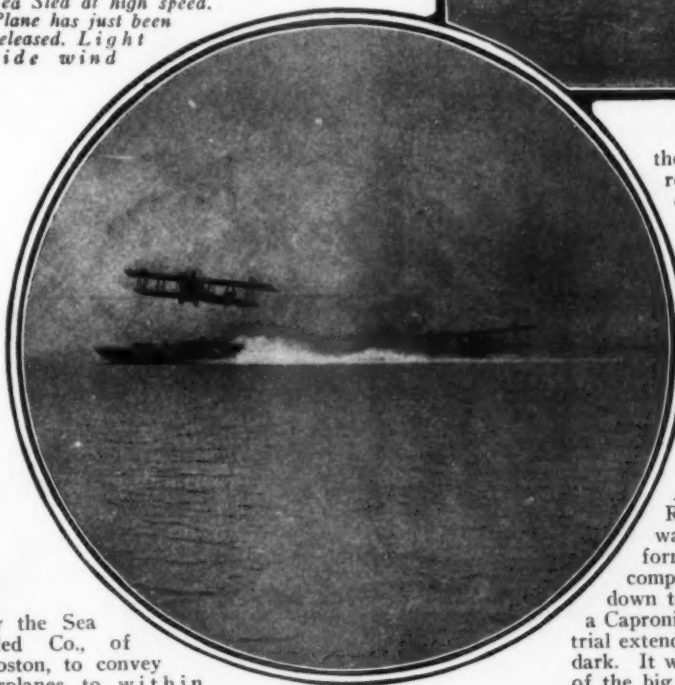


(Upper) Broadside view of Sea Sled with Curtiss machine aboard, taken from abeam on port side. Throttles partly open. Sled beginning to run up into planing position. Taken from an accompanying Sea Sled



(Right) Sea Sled out and planing. Air speed not yet sufficient for releasing

Sea Sled at high speed. Plane has just been released. Light side wind



by the Sea Sled Co., of Boston, to convey airplanes to within flight distance of the cities

which it was contemplated bombing and then releasing the planes from the sleds with their load of projectiles.

The Hickman Sea Sled with its own fuel was capable of cruising for a long distance at sea, enabling the airplane to carry its load of bombs and still carry sufficient fuel for it to make its raid and return to its base in England or the Allied part of Belgium. It was undoubtedly the idea that in certain sheltered waters available, and with

the aid of special devices, the machines could return to the boats. They would simply alight on the water and be hauled aboard again.

The preliminary trials of the boats in Boston before the planes were put aboard were of great interest, as the boats showed enormous planing ability and gave every evidence of being capable of attaining unusually high speeds. The boats came out and planed readily on about half throttle at about 1,050 engine revolutions, after which the throttles could be cut down to not more than one-third open, with the boats still planing satisfactorily, and the engine revolutions remaining at about 1,000. Full speed with the propellers first tried was in the neighborhood of 1,350 to 1,375 r.p.m. After the first boat was taken to Hampton Roads, a 3-engine, 600 h.p., Caproni land plane was mounted on the Sea Sleds supporting platforms, and Captain d'Annunzio, of the Caproni company, representing the Italian Government, came down to see the early runs. The first run made with a Caproni aboard took place late in the afternoon, and the trial extended into the evening, the boat coming back after dark. It was an impressive sight to see the four exhausts of the big 400 h.p. Murray & Tregurtha engines and the three sets of exhausts from the Fiats on the Caproni all working at once, something between 2,300 and 2,400 h.p., when everything was wide open. On the first evening, the boat was not opened up sufficiently far to plane, the trial being made merely to see that all engines were working properly.

During the next trial, all engines aboard the boat and aboard the Caproni were used, and the boat climbed up and

(Continued on page 80)

Columbia Yacht Club Opens Season

Society Summering in and Near New York
Turns Out in Force for Annual Event

THE opening of the season at the Columbia Yacht Club, one of the most important organizations in the entire country, took place Saturday, June 7, with appropriate ceremonies at the clubhouse and on the club grounds. The event brought out in full force that part of Manhattan society which was still in New York or close enough thereto to get to the clubhouse at 86 Street and the Hudson River. The opening this season was made the occasion by Deputy Police Commissioner John A. Harriss, commodore of the club, to present the club with a handsome open air dancing pavilion erected on the grounds of the club by the Commodore at his own expense.

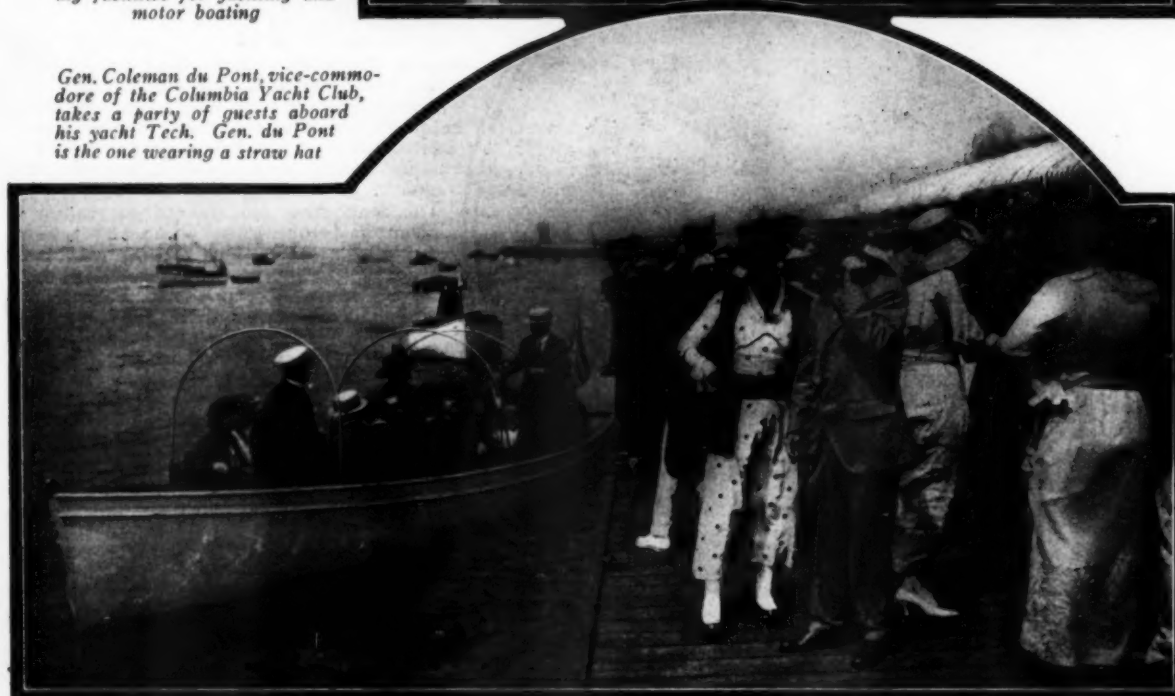
Photographs by M. Rosenfeld



Deputy Police Commissioner, John A. Harriss, commodore of the Columbia Yacht Club in the act of presenting a beautiful dancing casino to the Club, a most important event in the program for beautifying New York's waterfront and providing facilities for yachting and motor boating



Gen. Coleman du Pont, vice-commodore of the Columbia Yacht Club, takes a party of guests aboard his yacht Tech. Gen. du Pont is the one wearing a straw hat



One of the events of the opening ceremonies was a sail up the Hudson on Commodore Harriss' steam yacht Surf. Over 200 members and their friends were the commodore's guests



Commodores Berg and Moore were also hosts — the former is the young looking yachtsman with the white cap and Commodore Moore, who is largely responsible for the Columbia Yacht Club's progress this spring, is wearing the blue cap

Dancing casino at Eighty-sixth Street and Hudson River presented by Commodore Harriss to the Columbia Yacht Club

Ceremonies began at exactly 2 o'clock in the afternoon, when a gun was fired, the band played "The Star Spangled Banner," and the American and Club flags were run up on the flagstaff while streamers of pennants were suspended from halyards. Then followed a short speech of presentation by Commodore Harriss and its acceptance by other officials of the club, who warmly thanked the donor for his generosity.

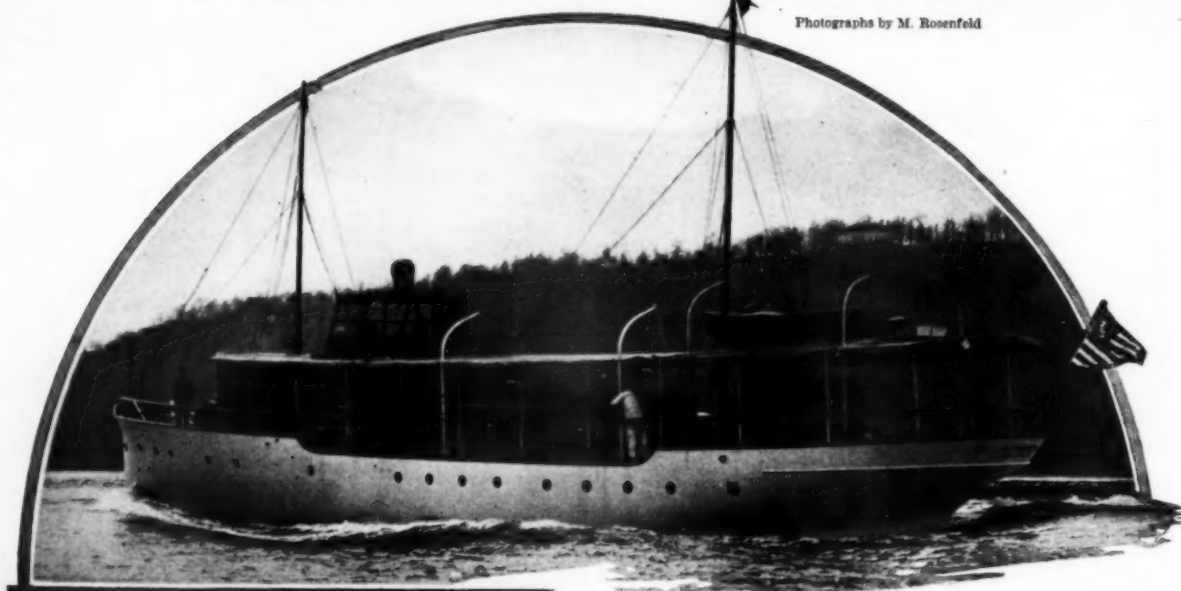
Commodore Harriss extended an invitation to the assemblage to be his guests aboard his beautiful steam yacht Surf for a trip up the Hudson and the rest of the afternoon was spent in cruising. In the evening the members and their guests entertained at a dinner, followed by a dance in the new pavilion.



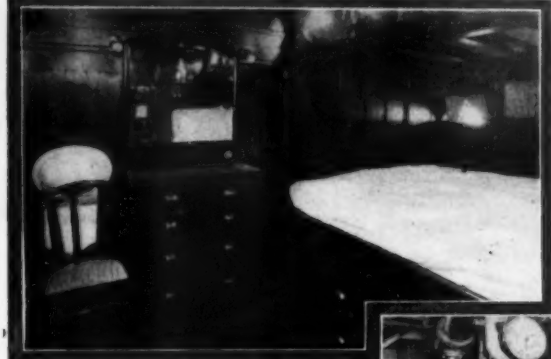
At the raising of colors—left to right: J. H. Halberg, of the Race Committee; H. W. McAteer, of the Race Committee; Commissioner Gallatin; Capt. Chas. Baeder; Ex-Commodore Berg; Ex-Commodore Porter; Chairman White, of the House Committee; C. F. Chapman, chairman of the Race Committee; Gen. du Pont, vice-commodore; Commodore Harriss; R. S. Galston, of the Race Committee; Rear-Commodore Moore; Secretary Branson; and Measurer Gunther

Unusual Features In Zumbrota

Photographs by M. Rosenfeld



Note the enclosed bridge which affords absolute protection for helmsman at the same time allowing sufficient space for guests without their being in the way



All cabins are heated by a hot water system with a radiator in each room

EMBODYING new features of arrangement and design Zumbrota, a 95-footer designed for service in Southern waters and particularly around Florida has been constructed with a draft of only 3 feet 10 inches. She is substantially and heavily constructed of wood, the exterior joiner work, deck house, skylight and other parts being all of teak or mahogany. The interior finish of the deck house and owner's quarters below is in paneled mahogany, while the guests' rooms are in mahogany and white enamel and the crew's quarters in white enamel with buttered trim.

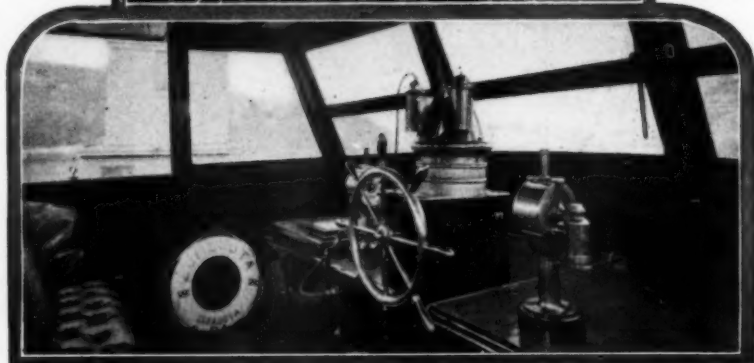
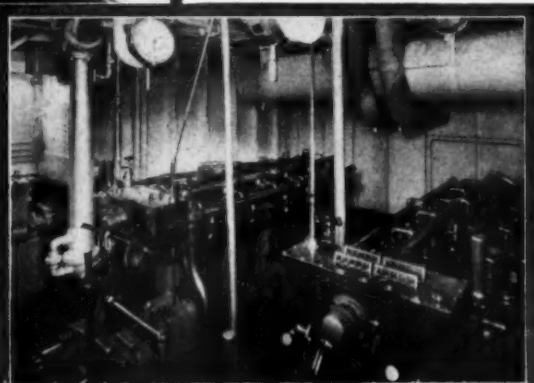
Zumbrota is 90 feet at the waterline and has a beam of 18 feet. She is designed to develop a cruising speed of 12 m.p.h. and a maximum speed of 14½ m.p.h. and is driven by

two Speedway motors of the air-starting and reversing type, 150 h.p. each. The engine-room is amidships, isolated from the rest of the vessel by double steel water-tight bulkheads. Corey telegraphs connect the engine-room with the bridge. The exhaust is carried up the stack through dry mufflers, and the fuel tanks are placed on either side of the motors, forward.

The Consolidated Shipbuilding Corporation built Zumbrota at the Morris Heights yards last year. She is of the flush deck type, with a plumb bow. A comparatively straight sheer is relieved by a rise fore and aft providing

very desirable bulwarks on the forward and after decks. The deck house is divided into two parts, with the dining salon forward and the smoking and music room in the after part. The galley extends the full width of the hull, with ample space for two stoves, a large refrigerator, heater, coal bin, sinks, racks, and closets. Electricity is supplied by an independent k.w. generating set.

Her two Speedway motors are of the air-starting and reversing type of 150 h.p.



The enclosed bridge is designed to afford protection even on those few chilly days which the South occasionally has

Starting Correctly to Build

II—Shaping the Stem, Keel, and Deadwood

By William Atkin

IN JUNE MOTOR BOATING, as I remember it, I promised to take up among other things, the subject in detail of laying out and rabbet lines, and of cutting the rabbets.

Figure IV represents the keel, the deadwood, the stem, and the stern drawn in section and at full size on the laying down floor. All dimensions are obtained from the architect's drawings, from the Table of Offsets, from the specifications, which should accompany the drawings, and from the lines which have been laid down.

There is first of all the proper placing of the rabbet line. The architect lays this in at its approximate position and tabulates its location on the Table of Offsets. Along the keel it is dimensioned on the sheer, and on each waterline from the forward station, O, 4 feet.

It may be well to explain that the thickness of the keel and stem have as much to do with the sweep of this dotted line (see Figure V) as the curve of the waterlines at the stem have, and of the frame lines at the keel too.

If the stem is over thick the intersection of the waterlines and of the sheerline, with its sides will be too far aft, and the rabbet line thus too far aft. All of which is perhaps more clearly shown in the sketch, Figure V. Note that the dotted lines show a stem 5 inches thick; the solid lines a stem 3 inches thick. A represents the position of the rabbet in the first case, while B represents its position in the second.

In the little boat we are using as an example from which to learn a thing or two about small boat building the stem and the keel are both $2\frac{3}{4}$ inches thick. Therefore, draw a short line parallel and at a distance of $1\frac{3}{8}$ inches (half of $2\frac{3}{4}$ inches) from the centerline as shown at x in Figure VI. This represents one side face of the stem, and x is the position of the rabbet at this place on the stem.

One step further of the process is shown at W. L. 1A in Figure VII. This shows the thickness of the plank, $\frac{3}{8}$ inch, taken from the rabbet X and parallel to the W. L. The point B is the back rabbet, and the point C the bearding line. Therefore, with a rule measure the distance from the forward edge of the stem to C. This with $\frac{1}{4}$ inch or so for good measure is the fore and aft dimension of

This article is the second of a series by Mr. Atkin which will take up the complete building of a boat, step by step, in the proper order in which the construction work should be done. By following the articles in this series any amateur will be able to build his own boat.—Editor.

the stem at W. L. 1A.

This being true of this particular part of the boat similar operations at every waterline, and at the keel, will give, and give accurately, the position of the rabbet, the back rabbet, and the bearding line at a chain

of places which, when connected by a fair-bending batten, will continue these lines from the stem line to the stem board.

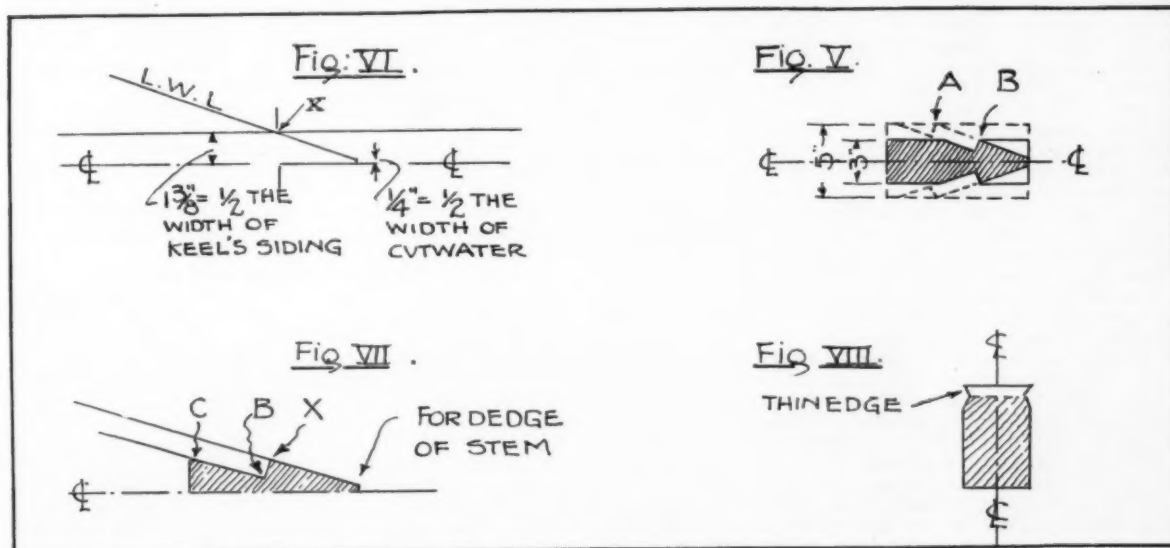
However, notice that it isn't practical to carry the bearding line all the way aft, as far as Station 2 is far enough, for in carrying aft it would form a feather-like edge that would have no strength and be difficult to cut. See Figure VIII. Therefore, draw the back rabbet and the bearding line as one line from Station 2, and continuing aft, making the keel sections look like the section in Figure VIII from the dotted line down.

When these lines, they should be marked with a black pencil and dotted, are completely drawn study the construction plans, especially the sectional elevation, and note the general make-up of the deadwood, keel, etc. Proceed then to draw these parts at full size on the paper drawing which is on the floor. This may seem unnecessary, but believe me, when I say it will be time well spent, eventually, too, it will be apparent that many missteps and miscuts have been avoided by spending time on this part of the job. So don't be chary of drawing, and redrawing the third time over, for it pays.

In connection with this advice it may not be amiss to say that I first worked for an engineer named Calvin T. Fried. His admonition to me, to all his other draftsmen, too, upon setting a first task was, "Don't be afraid of using paper. There's lots of it here. It is comparatively cheap. It costs little to change the drawings. It costs oodles to change machine parts, or structural parts after they are made. Waste paper if you will, but not building materials." Which, as some folks put it, "is sure the real dope."

One more line completes the full-size drawing—the centerline of the propeller shaft. This line of course is straight, and its obliqueness and height depends upon the make and the size of the motor which will be installed.

In our little boat I'd planned to install a single-cylinder



Details of construction which must be given attention in the building of a small boat

4 h.p. Barker motor which has a flywheel 16 inches in diameter and turns a propeller of similar dimensions. At Station 3 then the center of propeller shaft will be 2 feet 0 inches above the base line. At Station 7, the stern, 9 inches above.

Draw in full size the thickness of the planking at each station next the keel, just as shown in Figure IV, and this part of the work is complete.

It must be remembered that these detailed drawings are drawn "on top," so to speak, of the lines heretofore laid down. Therefore, use pencils of different color so as to avoid confusion.

We are lucky in this boat to have a vertical transom. Often the transom is set at a rake aft which complicates the drawing of its real shape. In drawings of a boat with a raking transom this member shows in the body plan its correct width, but its depth is foreshortened. In the profile the correct depth is shown, but its width is not. In a top view its real width is shown but nothing else except in projection. This all sounds complicated, but finding its true shape is after all a simple matter enough. Development is the art of determining the flat shape of any irregular surface, slanting, curved, or any shape. The art as carried out in a simple way will teach us to do the following: Project a line on the transom rake where every waterline crosses, and at right angles to the rake. On these lines lay off the half breadths of each waterline, and of the deck, as shown on the body plan. A line through the points so found will give the correct contour of the transom.

We have now reached the place where we begin to saw wood.

Let's begin with the stem.

There is one wood supreme above all others for the making of a boat's stem—it is hackmatack. Hackmatack is not the species name of a tree. Rather it is the American Indian's name for the wood of the larch or tamarack tree. American larch trees grow only in portions of the country where a thin layer of top soil overlays a hard sub-strata, perhaps three to six feet below the surface. The roots of this tree begin with the good intention of growing straight, and of penetrating deep, but upon encountering the hard subsoil turn aside and forever after grow in a parallel direction to the surface soil. This turning aside of the roots creates the natural crooks that the lumber trade, and the boat builder, know as hackmatack knees. These knees are sold in a semi-finished state and are obtainable in a great variety of sizes and turns.

So much for the best of stem woods.

Our next problem, after obtaining a rightly formed knee, is to transfer the shape of the stem from the full-sized drawing on the floor to the wood.

I've read all about accomplishing this by laying a row of tacks with their heads in line upon the floor drawing. Of simply laying the lumber which is to be marked upon these heads-in-line. Of tapping it sharply with a mallet. Of then finding, upon lifting it, that a register of these tack-head will be imprinted upon the wood. I've even seen this done, but it's the most unsatisfactory of all ways.

With the full-sized drawing made on building paper, as described previously, all one need do is loosen the drawing from the floor, if it is tacked down, insert the piece to be

marked underneath, and with an ordinary dressmaker's marking wheel traverse the lines that outline the stem, with the rabbets, the waterlines, etc., and upon completion find imprinted in the wood well-defined imprints of the many toothed rotor of the marking wheel.

The thickness of the stem, boat builders call it the siding, is of course found on the plans. The little craft we are interested in just now has a stem sided $8\frac{3}{4}$ inches. This is the thickness to which the stem should be dressed before marking it. I should have mentioned this before telling how to mark it.

The knee properly laid out, and by the way it should be marked upon both sides, after it is sawed out, will appear something like the sketch in Figure IX. Then saw it out and dress up the fore and after faces square with the sides.

Now to cut the rabbet.

The planking of our boat will be $\frac{3}{8}$ -inch thick. Cut a block of this thickness somewhere around 2 inches wide by 6 inches long; cut it with one end square in both dimensions, and use the square end in all subsequent operations. This boat builders call a fid, and by its aid the rabbet is correctly cut.

Figure X shows the stem with the first cut, and with the fid let into it. No secret here: just a matter of cutting into the side of the stem at 8-inch intervals and cutting only deep enough and at angle sufficient to allow the fid to fit as shown at B, and W in Figure VII.

After cutting, or spotting, at intervals cut the intervening wood and fair the rabbet from the stem head to within an inch or two of the scarf, which is the lower end that will join the keel.

In shaping the cut-water, do not cut to the width it will be at completion. Its finished width will be $\frac{1}{2}$ inch; for the time being, then, leave at least $\frac{1}{4}$ inch of wood to spare on each side.

One reason for leaving this extra material is that the stem outside of the rabbet will in all likelihood warp or twist before the boat is ready for painting. If it warps, what can anyone do with insufficient material with which to trim it straight again? Nothing, except sail around in a perfectly good, otherwise, boat with a lopsided stem.

It is hardly necessary to go into details of laying out and cutting the keel for, to all practical purposes, the work is similar to that of cutting out the stem. Let

me remind, though, that the station lines must be marked on the keel, and marked top and bottom as well as on both sides.

The construction of the stern post and tail timber I think is clear as shown in Figure IV as well as the deadwood.

However, there is one thing that requires fuller explanation—the boring of the shaft alley, and this operation I shall take up later. The cutting and joining of the scarf, or joint, between the stem and the keel requires careful workmanship. These parts are secured with two $\frac{1}{4}$ -inch bolts. In boring the holes for these, bore out of line, in a fore-and-aft direction, with those in the stem $1/16$ inch too far forward. Upon driving the bolts home the stem will be drawn aft and so jamb the scarf ends into a perfect joint. Draw boring this is called.

White oak is the choice of the majority for the fashioning
(Continued on page 84)

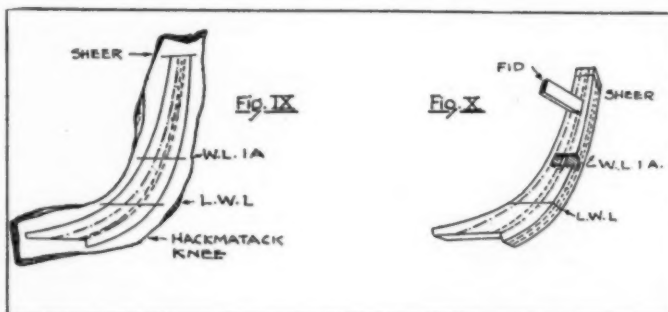


Fig. IX shows the knee properly laid out and marked on both sides. Fig. X shows the knee with the first cut and the fid let into it

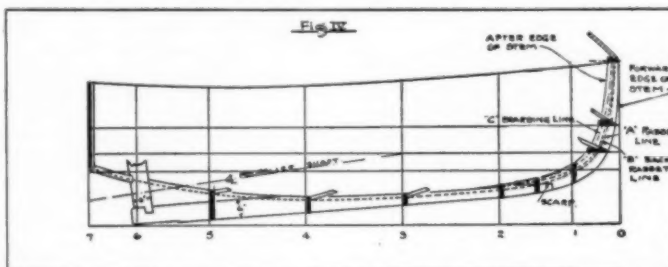
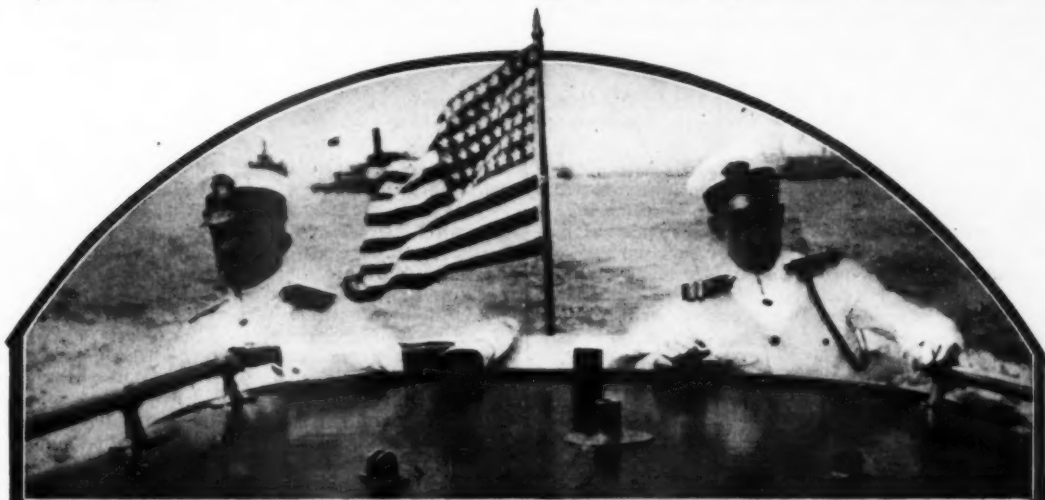


Fig IV represents the keel, deadwood, stem, and stern drawn in section

Dogs of War Resting in Days of Peace



The Admiral's Barge is powered nowadays not by the husky arms of a dozen sturdy seamen but by the finest gasoline motor. Manpower has been exchanged for horsepower

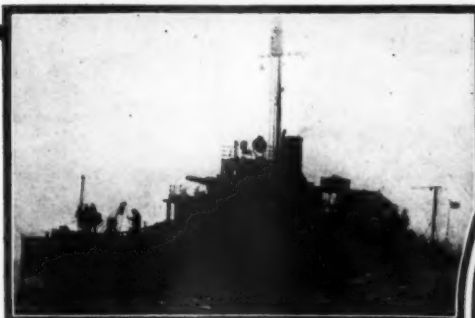


Photo by
Keystone
View

Eagle boats built in the Ford plant have been despatched to Archangel to aid the A.E.F.

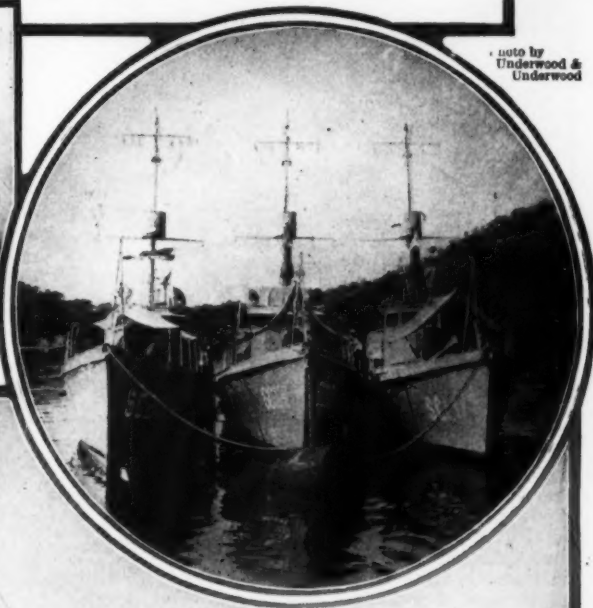
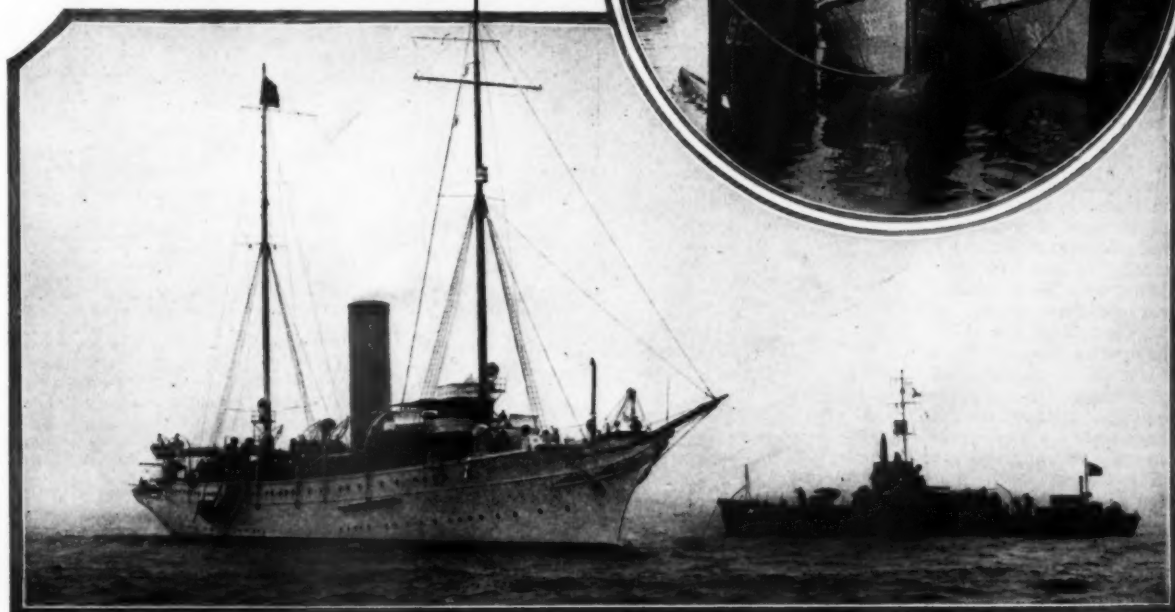


Photo by
Underwood &
Underwood



When President Wilson goes cruising in his official yacht Mayflower a chaser is assigned as his body guard
Upper right: American chasers at anchor in the Mediterranean

Photo by
Keystone
View

Six Prize Packages

MoToR BoatinG Introduces to Its Readers Six of Its Best Writers—
All Men Who Write from Experience about the Game They Love

By *Harwood Koppel*,
Associate Editor MoToR BoatinG

TALES with the tang of sailing swiftly under scudding clouds on salty seas, with the spray blowing back in bucketfuls; tales of cruises on calm inland creeks or the rough bosoms of mighty rivers; tales of listless wanderings on limpid lakes; tales of bucking breakers in boisterous bays; tales of cruising under mellow moonlight, all of those, yes, and more, are the sort of stories that the Six Prize Packages of MoToR BoatinG write for our readers.



C. E. Bradley has played around boats ever since he can remember and he knows them from stem to stern

But they do not stop there, but put on more power and mote along, giving authoritative advice on the practical problems that confront the motor boatman. And they can speak with authority, can these six big writers on motor boating topics because they have had the actual experience of years to back them up. They know whereof they speak, for they have done the things they write about. MoToR BoatinG is determined to give its readers only the best and hence, when it found that there were six men who were consistently winning many of the prizes offered each month in its Prize Question Contest, it became apparent to the Editors that these men must be unusually competent in the care and handling of motor craft. They could not win so frequently in competition with the best yachtsmen and sailormen in the country without being better qualified than most of the other contestants. These, then, were the sort of writers that MoToR BoatinG wanted. That was years ago, and since that time these men have not only been answering the questions in the Prize Contests and frequently winning the prizes but they

have been regularly contributing articles that stand unquestioned.

It is with great pleasure, then, that the Editors of MoToR BoatinG introduce to you the personalities of its six great writers, its Six Prize Packages the Editors call them, because not only are they highly prized in these offices, but because they have contracted the habit of winning our prizes in the contests. We rise to present Messrs. C. E. Bradley, C. H. Christie, F. T. Lander, Allan O. Goold, Joseph M. Keefe, and Warren B. Moores, sometimes writers in these columns, but always motor boatmen.

C. E. B., as those who followed the contests in MoToR BoatinG know him, or C. E. Bradley, of 109 Walker St., Fall River, Mass., just couldn't help being a motor boat enthusiast, for he was raised on the shores of the Watuppa, which is taken from the Indian, meaning "Place of Boats."

"Ever since I can remember I have played around boats and I have enjoyed the game because, like a lot more chaps, I just can't help it," says Mr. Bradley.

"Have always been blessed with ideas for sketching and making things appertaining to boats and I'd rather sketch up a boat, help build a



(Above) F. T. Lander is out in a boat at every opportunity and in between times he dreams about them and learns things from his dreams, he avers

(Left) C. H. Christie has been a boating "bug" ever since his spanking days and even before, and he has actually had more boats than spankings

boat, or cruise in a boat and fish from a boat than do anything else in the way of a hobby. I have had the pleasure of owning more than a half dozen boats which have yielded not only untold fun to myself but a goodly amount to others as well.

"Recently I completed the design of a small motor of my own, patterns of which are well on the road to completion. From the patterns I hope to get castings made and ma-

chined and later on assemble the motor for trial in a small Jingo model. I stand ready and willing at all times to do what I can to boom or boost the sport. I was fortunate in being born and brought up in a locality affording plenty of boating, for not only do we have Taunton River, Mount Hope Bay, and Narragansett Bay offering the best of salt water sport on the west of the city, but also the Watuppa Lakes, large fresh water sheets for fishing and boating on the east of the city. I look forward to having the best season ever this summer."

Mr. Bradley is a member of the Watuppa Boat Club, having served as secretary for lengthy periods and also on the auditing committee.

C. H. C., the nom de plume under which we have offered for our readers' approval the answers of C. H. Christie, of 720 Benjamin St., Saginaw, Mich., has been a boating "bug" ever since his spanking days, and perhaps even before that, when he was too small and perhaps too insignificant to be paddled, for he says some of his earliest recollections are connected with boats, although he wisely refrains from mentioning the unpleasant recollections to which we referred.

"The first one I remember," says Mr. Christie, "was carved from a piece of thick bark of a big Canadian cork pine. This boat was given to me by my father upon his return from a hunting and exploring trip. Soon after that I began building my own boats and have continued to do so ever since. A few years later we lived for a summer on an island near the Straits of Mackinaw, where I acquired quite a fleet. The flagship was about 3 feet over all and I'll always remember this boat because one day it ran away with all sails set. Even at that age I knew better than to venture out with a heavy rowboat in the fresh wind that was blowing, so I just sent out an S. O. S. call to my father. He furnished the motive power and we started after the runaway. Well, it proved one of the most exciting races I ever remember engaging in. The boat was certainly a good sailer.

"Two or three years later we moved to a town on Thunder Bay, an

Allan O. Goold's earliest memories associate themselves with boats—way back in his school days he says the wharves were ever the mecca of his leisure hours



Joe Keefe takes a peculiar delight in overhauling engines that refuse to mope, and after he gets through with them they put, put their best foot forward



arm of Lake Huron. Thunder Bay is an ideal place for yachting and boating of all kinds. The bay is exposed to southeast winds, so there is enough rough water to make things interesting and to develop good boats, yet there are a number of small harbors and islands so that a small boat can easily find shelter when you have had enough. Those shores and islands were heavily wooded and sheltered an abundance of wild life. There were dozens of interesting places to explore and a boat seemed to be the easiest and most convenient way of reaching them. With such surroundings it was only natural that I soon gave up building toy boats and turned my attention to something I could travel in. There were a number of big rowboats and sailing scows and then, at the age of fourteen, I undertook the construction of a real yacht, a round-bilge boat of about 25 feet over all by 7 feet beam. Oak was a scarce article in that locality, so I took a leaf from the notebook of the Mackinaw Indians and made the frames of natural crook cedar. This required a lot of exploring around in the nearby



Warren B. Moores started his water sports as soon as he was able to sneak away from home long enough to get to the river. His age at that time was about four minus

woods for cedar of just the right curve. When found it was taken home and shaped out to fit the full size sections as laid down. The plan followed was to carve them out large enough for two frames and then saw them in two. Cedar makes a good frame, only the frames must be of larger size because it is a light wood.

"This boat was remodeled, re-rigged and changed each season for about three years, when she became quite successful and was

then promptly discarded to make way for something larger and better. Most of our sailing was done on Thunder Bay, but there were a few longer cruises of about 120 miles to Mackinaw Island and return, one long trip down Lake Michigan nearly to Chicago, and another through Lakes Huron, St. Clair, and Erie, as far as Cleveland; all with sailing craft, and sail boats don't get there even like a slow power boat.

"About the time the windjammers began to get interested in power boats I moved to Saginaw. This place is about 20 miles from open water and is no good for sailing, so naturally, as I had to have a boat of some kind, I turned my attention to gasoline engines. Having learned the machinist's trade, an understanding of the principles and construction of gasoline engines came easily and I became greatly interested. My next move was to secure a set of castings for a

(Continued on page 64)

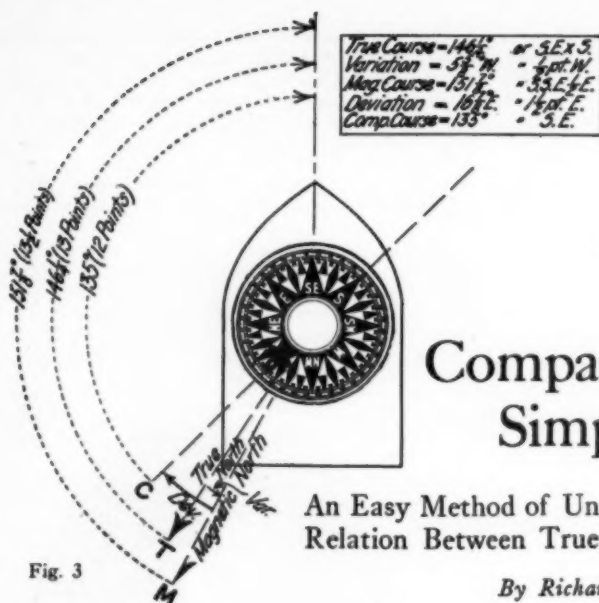


Fig. 3

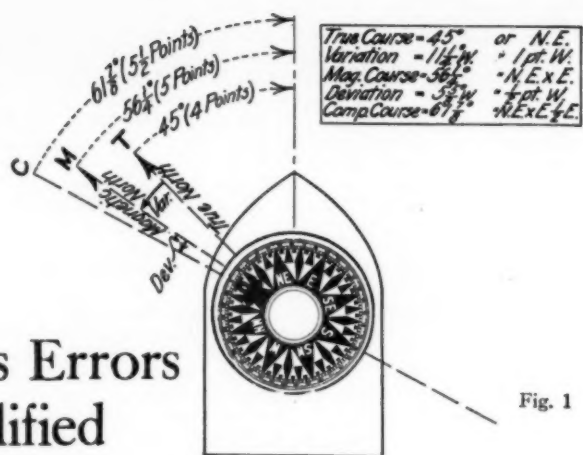


Fig. 1

Compass Errors Simplified

An Easy Method of Understanding and Remembering the Relation Between True, Magnetic, and Compass Courses

By Richard S. Kirby

THE word "course" is used, among nautical men, in two different senses (in plane sailing).

(1). "A direct course from A to B." Here the track or path of the vessel is defined by naming two points on it.

(2). "A N.E. by E. (or 56 1/4 degrees) course." Here the direction or bearing of the track or path is stated, that is, the angle that such line makes with a north line.

The statement of (2) is not perfectly definite, for "the angle that a line makes with a north line" depends on what we mean by north.

To illustrate:

- A vessel's *true course* actually means the angle that its heading makes with a line which extends from the vessel toward *true north*. (True north is indicated on charts by the meridians.)
- A vessel's *magnetic course* actually means the angle that its heading makes with the north towards which its *compass* would point if free from disturbing influences aboard ship. (Magnetic north is indicated on charts by the compass rose.)
- A vessel's *compass course* actually means the angle

that its heading makes with the north toward which its *compass* points.

These three angles would not, in general, be the same for any given path or track of the vessel. It may be necessary, having given one, to find either or both of the others.

The angle between magnetic north and true north is called *variation*. It varies widely from place to place, and slightly from year to year in any one place. It has been determined experimentally for very many localities by government scientists, and is noted on each chart. Variation is westerly along our Atlantic coast and easterly along the Gulf and Pacific coasts, measured from true north.

The angle between magnetic north and north by the vessel's compass is called *deviation*. It varies with each vessel, and even on the same vessel it changes with each heading and each different disposition of magnetic substances aboard. A vessel's compass may point either east or west of magnetic north,—how much can be determined only by experiment.

The author confesses to a weakness for picturing calculations. "T. M. C. add W.," the common formula expressing the relation between the angles under discussion, works

(Continued on page 80)

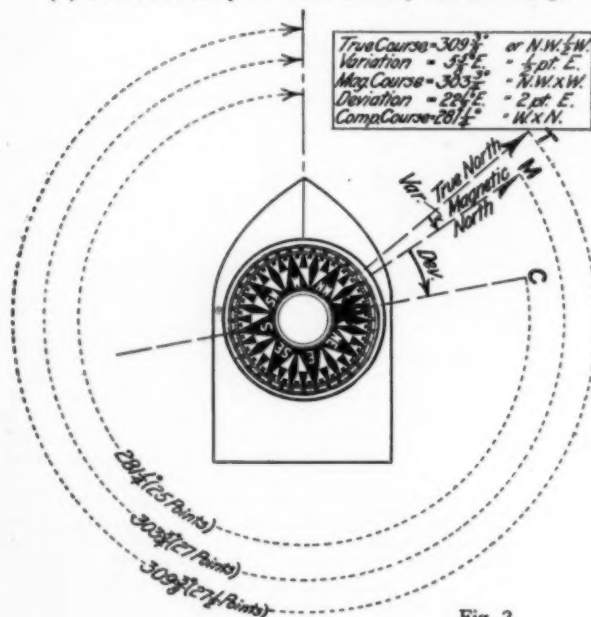


Fig. 2

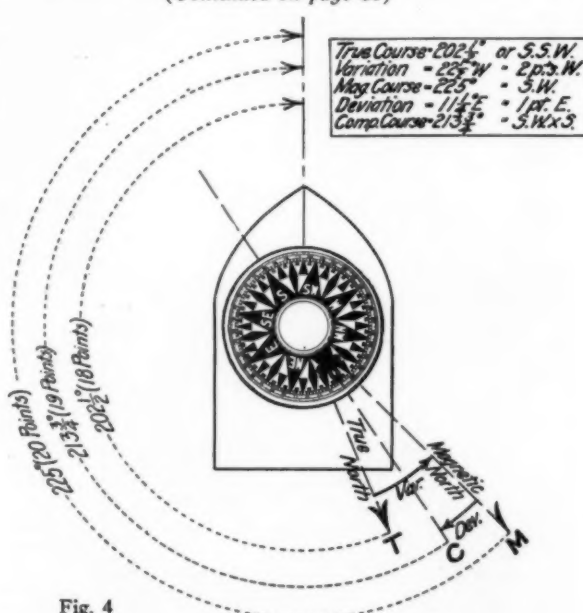


Fig. 4

SMALL MOTOR BOATS

Their Care, Construction, and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions Submitted for September Prize Contest

1. Suggest the best methods to use to get Congress to repeal the unfair war tax on motor boats. Give your arguments why the tax should be removed.

Suggested by E. B., Baltimore, Md.

2. How would you bring in under its own power a boat with a broken shaft and what can you suggest to prevent its recurrence?

Suggested by W. B. M., Newburgh, N. Y.

3. Describe and illustrate the most convenient and satisfactory method of storing an out board motor on a medium-sized cruiser when same is not being used on the tender of same.

Suggested by C. E. B., Fall River, Mass.

Rules for the Prize Contest

ANSWERS to the above questions for the September issue addressed to the Editor of MoToR Boating, 119 West 40th St., New York, must be (a) in our hands on or before July 25; (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The name will be withheld and initials used. QUESTIONS for the next contest must reach us on or before July 25. The Editor reserves the right to make such changes and corrections in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions below, any article or articles sold by an advertiser advertising in this issue of MoToR Boating of which the advertised price does not exceed \$25, or a credit of \$25 on any article which sells for more

than that amount. There are three prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer all.

For answers which we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of MoToR Boating, of which the advertised price does not exceed \$5, or a credit of \$5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.

What Is the Power of Your Motor?

Answers to the Following Prize Question Published in the May Issue

"How can one determine the power of his gasoline engine with a fair degree of accuracy from bore, stroke, and r.p.m.?"

Many Factors to Be Considered

The Prize-Winning Answer

MANY efforts have been made to develop a formula giving the horsepower of a gasoline motor, but these efforts have been more or less futile. There are a great many factors that must be considered besides the bore, stroke, and r.p.m., such as compression, size of valves or ports, form of compression chamber, weight of reciprocating parts, size and fit of bearings, cooling, lubrication, etc.

The most simple formula for calculating the approximate horsepower, using the following letters to represent the factor and the figure 13,500 as a common divisor is: B = bore, L = length of stroke, R = revolutions per minute, N = number of cylinders.

Formula:
$$\frac{B^2 \times L \times R \times N}{13,500} = \text{Horsepower}$$

The explanation of this formula is as follows: The bore squared, the bore times itself, times the stroke, times the r.p.m., times the number of cylinders, divided by the divisor or constant, 13,500, equals the horsepower. For example, find the horsepower of a four-cylinder motor of 4-inch bore, 5-inch stroke, at 500 r.p.m. Using the above formula the figures would read:

$$\frac{(4 \times 4) \times 5 \times 500 \times 4}{13,500} = \text{Horsepower}$$

Clearing the fractions gives
$$\frac{16 \times 5 \times 4}{27} = \frac{320}{27} = 11.86 \text{ H.P.}$$

Another formula that is somewhat more reliable, but which requires the use of the compression and explosive pressure exerted upon the piston and also the area of the piston, is as follows: P = mean effective pressure, A = area of piston, S = length of piston stroke, Ex = explosions per minute, N = number of cylinders.

As may be understood from the term itself, the mean effective pressure is an average for the pressure in pounds per square inch brought to bear upon the piston during its entire down or power stroke, minus the average or mean compression pressure. The pressure exerted upon the piston at the moment of firing is around 240 pounds per square inch, but as the piston moves down in the cylinder the volume of the gas is increased, which in proportion decreases the pressure, so that at the end of the stroke the pressure has dropped to almost 50 pounds per square inch. A fair average pressure exerted during the entire power stroke is about 90 pounds per square inch. This also applies to the compression where the pressure varies from practically nothing at the start of the stroke to about 60 pounds per square inch. A fair average compression would be about 10 pounds per square inch. Thus mean effective pressure would be 90 minus 10, or 80 pounds per square inch of piston area.

Formula:
$$\frac{P \times A \times S \times \text{Ex.} \times N}{12} = \text{Foot pounds of work performed in one minute.}$$

The above, explained, reads: Mean effective pressure times the area of the piston, times the stroke, times the explosions per minute, times the number of cylinders, and the product divided by 12 to reduce it to feet. To find the horsepower, divide the answer by 33,000, which represents the number of foot pounds of work required for one horsepower per minute. The formula complete will read:

$$\frac{P \times A \times S \times \text{Ex.} \times N}{33,000 \times 12} = \text{Horsepower.}$$

To find the area of the piston, multiply 3.1416 by the bore squared and divide by 4. To find the area of a 5-inch piston would read:

$$\frac{3.1416 \times (5 \times 5)}{4} = \text{Area of the piston.}$$

For an example of the above formula, find the horsepower

of a motor with 4-inch bore, 5-inch stroke at 800 r.p.m., four cylinders, four-cycle. In a four-cycle engine the explosions will be equal to one-half the revolutions, and in a two-cycle engine the explosions will equal the revolutions.

Using the formulas above, the area of the piston will be $\frac{3.1416 \times (4 \times 4)}{4} = \frac{3.1416 \times 16}{4} = 12.56$ cubic inches.

$$\frac{P \times A \times S \times \text{Ex.} \times N}{80 \times 12.56 \times 5 \times 400 \times 4} = \text{Horsepower}$$

$$\frac{33,000 \times 12}{8 \times 12.56 \times 5 \times 4} = \frac{2009.60}{33 \times 3} = 20.3 \text{ Horsepower}$$

On figuring the horsepower for two-cycle engines, multiply the result by .60, as the two-cycle is only about 60 per cent. as efficient as the four-cycle.

J. C. H.,
New York City.

S. A. E. Formula the Most Widely Recognized

POWER, taken in a general sense, is the rate at which work is done. It is the quotient of work divided by the time in which it is done, thus:

$$\text{Power} = \frac{\text{work}}{\text{time}} \text{ or } \frac{\text{Weight in pounds} \times \text{distance in feet}}{\text{Time in minutes}}$$

The work or energy required to raise 1 pound 1 foot or to overcome a resistance of 1 pound through a distance of one foot is called a foot-pound. Likewise 1 h.p. has been defined as 33,000 foot-pounds of work done in one minute.

There are several factors upon which the horsepower of a gas engine depends: (1) The mean or average effective pressure on the piston in pounds per square inch, usually abbreviated to M. E. P.; (2) the area of the piston in square inches, (3) the length of the stroke in feet, and (4) the number of power strokes per minute. The product of these factors divided by 33,000 will give the indicated horsepower of one cylinder (I.H.P.). But since there is always some friction in the engine which uses part of this power, which amounts to anywhere from 10 per cent. up, this must be subtracted, leaving the theoretical brake (actual) horsepower (B.H.P.).

The S. A. E. Horsepower Formula is probably the most widely recognized and its development is given below.

The I.H.P. of a 4-stroke cycle gas engine is equal to the percentage of the cycle which is power stroke times the mean effective pressure, P times the area of the piston, A times the piston speed, S times the number of cylinders, N, divided by 33,000:

$$\text{I.H.P.} = \frac{25 \text{ per cent. } P \times A \times S \times N}{33,000}$$

Further multiplying by the Mechanical Efficiency, E gives the brake horsepower:

$$\text{B.H.P.} = \frac{P \times A \times S \times N \times E}{33,000 \times 4}$$

The S. A. E. assumes that all gas engines will deliver, or should deliver, their full H.P. at 1,000 feet per minute piston speed with a mean effective pressure of 90 pounds per square inch and a mechanical efficiency of 75 per cent. Substituting these values and .7854 D² for A we get

$$\text{B.H.P.} = \frac{90 \times .7854 \times D^2 \times 1,000 \times N \times .75}{4 \times 33,000}$$

solving,

$$\text{B.H.P.} = \frac{D^2 N}{2,489}, \text{ which equals approximately } .4 D^2 N$$

However, all modern engines run with piston speeds exceeding 1,000 feet per minute; so if we have given the stroke, S, the r.p.m., R, we can easily find the correct piston speed and substitute:

$$\text{Piston speed} = 2 \times S \times R$$

This gives us,

$$\text{H.P.} = .45 (D + S) (D - 1.18)$$

$$\text{B.H.P.} = \frac{4 \times 33,000}{D^2 S R N} = 12,449$$

A few other formulas are:

British Institute of Auto Engineers:

$$\text{H.P.} = .45 (D + S) (D - 1.18)$$

$$\text{E. P. Roberts: H.P.} = \frac{18,000}{D^2 S R N}$$

For 2-stroke-cycle engines the empirical formula, B.H.P. = .0000135 D² S R N, is probably simplest. Another way to figure the horsepower for a two-cycle machine is to treat it as a four-cycle and solve accordingly, using any good formula, and then multiplying the result by 1.65, which number takes into account the doubled power strokes, the increased mechanical efficiency, and the decreased volumetric efficiency with its correspondingly decreased M.E.P.

However, the best of formulas can only give approximate results and should not be used except for fixing ratings or when a brake test cannot be taken.

R. H., Mansfield, O.

Number of Cylinders Must Be Considered

ALTHOUGH bore, stroke, and r.p.m. are factors in determining the power of a gasoline or other internal combustion motor, the number of cylinders is also a requisite. Whether the engine is of the two- or four-cycle type, and whether it be of the Diesel or regular type, are still finer points. Compression is an important point that is frequently neglected; therefore, it may be seen that a formula for each different type would take up too much space. Consequently, it is better to take one formula with different co-efficients. With the following rule one should find no difficulty in determining the power of his engine to within a fraction.

$$\text{Horsepower} = \frac{A \times S \times N \times R}{C}$$

Where

A = Area of one piston in square inches.

N = Number of working pistons.

S = Length of stroke in inches

R = R.P.M.

C = Constant, as follows:

For four-cycle gasoline, C = 12,000

For two-cycle gasoline, C = 9,000

For four-cycle Diesel, C = 9,600

For two-cycle Diesel C = 6,000

W. F., Minneapolis, Minn.

Piston Displacement and R. P. M. Must Be Considered

STEAM engines are usually rated by indicated horsepower (i.h.p.), this rating being determined by the PLAN

formula, $\frac{PLAN}{33,000}$, where

P = average steam pressure on piston through entire stroke, called mean effective pressure (m.e.p.).

L = length of stroke in feet.

A = area of piston in square inches.

N = number of strokes per minute.

The figure 33,000 is the value of a horsepower expressed in foot-pounds.

This formula can be used for determining the power of the gasoline engine by taking into consideration the differences between a gas engine and the steam engine and using a good average figure for P or the mean effective pressure

(Continued on page 84)

Keeping the Boat Free of Bilge Water

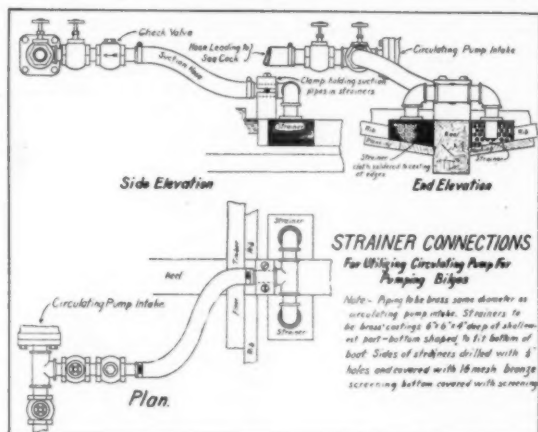
Answers to the Following Question Published in the May Issue

"Describe and illustrate a simple, practical arrangement for pumping out bilge water by means of the circulating pump on the engine, taking special care to provide for elimination of the danger of clogging any part"

Arrange to Use the Circulating Pump as a Bilge Pump

The Prize-Winning Answer

THE general use of the circulating pump of a marine engine for pumping bilges is undesirable, though it is an excellent plan to be able to use the circulating pump for this purpose in emergencies. There is a likelihood of allowing the engine to run dry if the circulating pump is used for the routine pumping of bilges, and moreover the fine grit and sludge that is inevitably taken into a bilge pump can do nothing but harm to the circulating



Here is an installation by W. M. A., that is simple and reliable and at the same time properly safeguards the circulating system from clogging and the boat from flooding

system. Because emergencies may arise when great quantities of water must be pumped from the bilges, it is desirable to have arrangements made so that the circulating pump can be used as a bilge pump with the smallest possible risk of getting dirt into the pump and jackets, or flooding the boat through the seacock and bilge strainers by incorrect operation of the valves controlling the system.

The accompanying diagrammatic drawing shows an installation which is simple and reliable and at the same time properly safeguards the circulating system from clogging and the boat from flooding. The strainers are brass castings covered with copper screening, the size known as sixteen-mesh being used. The first strainers of this kind installed by the writer did not have screening over the opening at the bottom of the strainer box, but it was found that thin chips would work under the edges of the strainers and cause trouble with the pump valves. No trouble has been experienced since the bottoms of the boxes were screened. The removal of two screws from the wooden clamp which holds the suction pipe in place permits the removal of both the pipe and the strainers for thorough cleaning. Globe valves are used for controlling the system instead of a 2-way plug cock because plug cocks are apt to leak slightly and a slight leak in the suction line of the circulating pump may cause failure of the circulating system. The check valve prevents sea water from getting into the bilge if both valves are left open by mistake.

An installation of this kind should cause no trouble if carefully operated and used only when there is a large amount of water in the bilge. The operator should watch the suction well and the circulating water discharge when pumping bilges and should stand-by to open the seacock at the first sign of the pump drawing air or failing to deliver a normal quantity of water. The regular power or hand bilge pump should always be used for removing the last of the water.

Strainers of the type illustrated are suitable for use with a power bilge pump, but when so used two additional valves should be provided to enable water to be pumped from either side of the keel. If these valves are not installed one side of the boat will invariably go dry before the other, thus admitting air to the pump and making it impossible to pump out the water remaining at the other side of the keel.

W. M. A., Philadelphia, Pa.

Air-Tight Connections

PUMPING out bilge water by means of the engine circulating pump is practical. Provided, of course, the pump as designed has sufficient suction to draw from a greater distance than originally planned. If the suction end is carefully screened, the danger of clogging should be no greater than through the main intake.

All connections must be air-tight to allow maximum amount of suction through the screened end, which must be kept submerged to prevent the sucking of air.

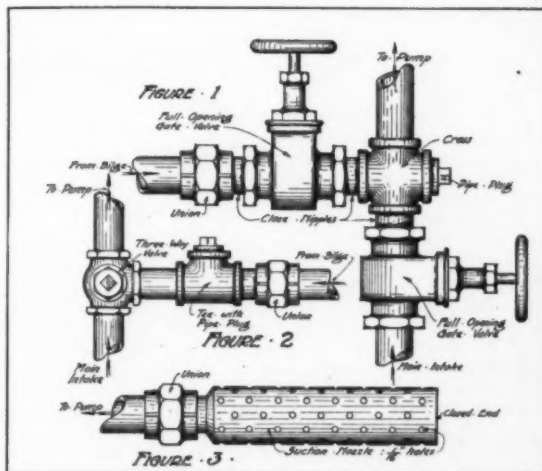
Figure 2 shows a successful installation for medium size boats. Figure 1 installation is preferable for larger size boats, although it can be used on any size outfit. The advantage over Figure 1 installation is that the amount of water passing through the line can be controlled by the gate valves. Figure 2 installation consists of a 3-way valve placed on main intake line. Connected into the valve by close nipple is a tee connection having a removable pipe plug in one port for the cleaning of the line.

A flexible clean-out wire can be run through from this point, or air or water pressure connected here to blow out any obstructions.

Figure 1 shows a cross connection instead of a tee as in Figure 2. The cross allows a straight drive through the bilge line. It also allows the clean-out wire to be run through main intake or toward pump. The union connections in each case are placed at this point so that the line can be quickly broken for cleaning purposes. It is also possible to break the line while the engine is running, if necessary.

If it is desired to clean out the slime and filth that accumulates on the interior of the engine water jackets, a connection can be made here and a bucketful of cleaning solution pumped through from this point. The gate valve on main intake or the 3-way valve, when properly set, can be used as a seacock. Full opening gate valves are recommended, as they allow a clear passage through the line.

The strainer for suction end of bilge line, Figure 3, is



G. E. C. says to use white lead liberally for all pipe joints

most efficient. Secure a piece of brass pipe of proper dimensions to meet your requirements. Close one end. Drill as many 1/16-inch holes as the pipe will stand without weakening the side walls, and you will have as good a suction nozzle as money can buy.

It is not advisable to make the holes larger, as chips may pass through and injure the pump. For piping, galvanized brass or copper are best. Ordinary iron pipe deteriorates rapidly and should not be used. It is not advisable to connect together dissimilar metals such as iron and brass pipe, when used about salt water. Electrolytic action is liable to take place and will eat up the iron pipe.

Do not use garden hose for bilge line. The side walls are thin and may collapse while the pump is in operation. If rubber hose is necessary, use at least a 3- or 4-ply hose. Oil will rot rubber rapidly and is not the best thing to use for greasy bilge water.

Use white lead liberally for all pipe joints. If a little powdered graphite is mixed with the white lead, the connection will break easy later on.

Standard pipe and fittings are known commercially as I. P. or Iron Pipe Sizes. To determine size, measure inside of pipe. G. E. C., Philadelphia, Pa.

All Foreign Matter Must Be Kept Out

POWER bilge pumps are being deemed such an important and necessary part of equipment on larger craft that numerous manufacturers of heavy-duty motors have seen fit to incorporate a small separate pump especially for the purpose, usually affixing same at some convenient location on the engine base. For the smaller type of craft, however, where a special expensive auxiliary pump is hardly necessary, a simple, practical bilge pumping arrangement can be installed after the manner indicated by the accompanying sketch. Here, by placing the two controlling valves as shown and arranging simple piping connections to the circulating pumps on the engine, a feasible means of ridding the boat of bilge water is obtained, pumping same through the jacket and thence overboard.

To only special feature in such an arrangement to guard against is to prevent all foreign matter, such as chips, bits of rag, and dirt from being taken into the suction line and being carried to any place where they are likely to clog up. By reference to the sketch it will be noticed that the bilge water inlet is provided with a simple flat plate covered with a fine screen wire strainer. The screen should have a cross-sectional area considerably greater than the inlet pipe in order to insure sufficient feed to the pump even should a portion of the strainer become clogged, and it should also be made easily removable for cleaning. As is further shown, a simple flange coupling with a piece of fine burlap or heavy gauze stretched tightly between the faces is an absolute precaution that will arrest any very finely divided particles of sand or sediment. The muddy sediment here checked will drop back into the sediment catcher and can be easily removed by unscrewing the pipe cap on the bottom of same.

A more simple, inexpensive and practical means of pumping out the bilge water would be rather difficult to devise.

Such an arrangement as pictured in the diagrammatical sketch could be installed at a less cost than even some of the decent size double-acting hand bilge pumps are priced at present in the supply catalogs.

It would be well when operating such a system to endeavor to keep the bilges as clean as possible at all times and to flush out the jacket for a few minutes by pumping clean water through same from cooling water inlet. Also if the bilges are of such shape as to cause the flywheel to throw water, with a small amount of water in the bottom, a shallow trough should be made to set below the flywheel so as to eliminate this.

C. E. B., Fall River, Mass.

Globe Valves or 3-Way Cock

THERE are at least two ways to arrange the piping so that the bilge may be pumped with the regular circulating pump. One way is to use a 3-way cock as in Fig. 1. The cross-section shows the ports in the plug registering with the pump and pipe to sea. By turning a quarter turn to the left the ports will register with the pump and bilge suction and the sea intake will close.

There should be a stop pin in the upper end of the plug

to prevent the plug from being turned to other positions than the one intended. Occasionally the pin is already located in such a position that the plug cannot be turned to the openings that could be most conveniently piped. In this case the pin may be sawed off and the plug made to rotate as desired; but be certain to drill a new hole and insert a stop pin for the new position.

Don't operate the valve without the stop pin, because it is possible to turn the plug in such a way as to connect the bilge suction and sea intake and shut off the pump.

For example, in Fig. 1 if the handle were turned a quarter turn to the right, the sea intake and bilge suction would be connected, and if left in this position the boat would fill with water; provided the pipes and valves were below the water line as they usually are. This is exactly what happened in at least two cases of mysterious sinking that came to my notice.

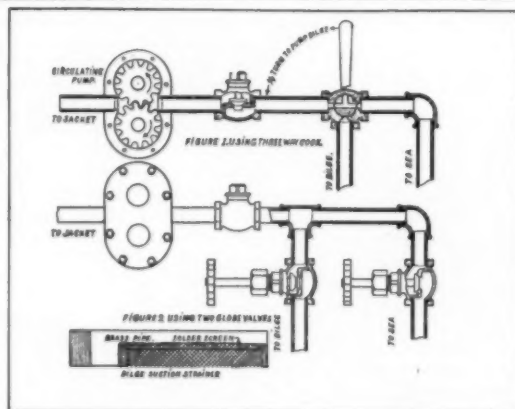
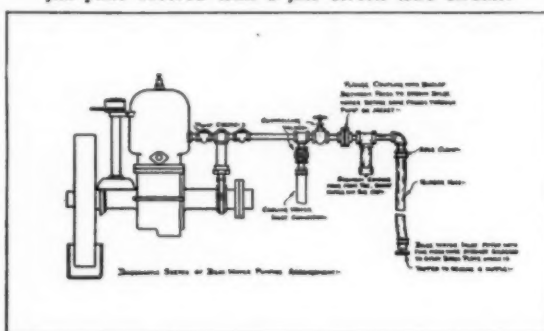
The other plan is to use two ordinary globe valves, one for the sea suction and one for the bilge, as in Fig. 2. One is always closed and the other opened, allowing the pump to draw water from the bilge or sea as desired. When using either a gear or a vane pump, or any rotary pump, a check valve should be placed between the pump and 3-way cock or globe valves to prevent the water from flowing out of the cylinder jackets the moment the engine is stopped.

With the plunger type of pump this is not necessary, because two check valves are a part of the pump and may be depended on to prevent the water from leaving the jackets by that route.

Of course, the bilge suction should have a reliable strainer, and this may be made in a number of different ways. One plan is to cut away one side of a long brass nipple, close up the end and solder suitable brass screen wire over the removed section as in Fig. 3. The principal requirement is to have plenty of screen surface, so that when partly clogged the water will still flow freely to the pump.

With a reasonably good strainer there is very slight pos-

A bilge water inlet is provided by C. E. B., with a simple flat plate covered with a fine screen wire strainer



C. H. C. illustrates two ways of arranging the piping so that the bilge may be pumped. One plan is to use a 3-way cock and the other to use two ordinary globe valves

sibility of clogging the pump. In fact, I have used this system a number of seasons and have had no trouble whatever from that source; but there is another objection to this system of pumping the bilge with the circulating pump that is far more objectionable than the possibility of clogging the pump. This is the probability that unless the pump is closely watched it will be forgotten and when the bilge is empty the engine will run for a while without water; usually until someone notices the smell of burning paint, and then turning on the cold water suddenly to the overheated cylinders doesn't do any good. This happened on board more than once and finally I pulled the piping out and intend to install a small rotary fan type pump to operate at high speed from the flywheel, one that I can forget without doing any harm.

A section of $\frac{3}{4}$ -inch rubber hose is convenient for connecting the bilge strainer to the pipe leading to the pump. This size fits snugly over $\frac{1}{2}$ -inch pipe and needs little clamping to make a tight connection.

The principal advantage in using the circulating pump for the bilge is that it may be connected up at slight expense; far less than the cost of installing a separate pump. If you feel like devoting your entire attention to pumping the bilge when necessary, use this plan; if not, use a separate pump.

C. H. C., Saginaw, Mich.

A Strainer Must Be Provided

THE problem of disposing of the bilge water by means of the circulating pump should present no difficulties to the ingenious motor boatman. Every engine is already provided with the pump and their remains only the adaptation of this pump to the additional service required to clear the bilge.

As illustrated, a 3-way valve is a very simple and compact device to accomplish this end. One side of the valve is connected in the usual manner to the sea connection, the other side to the bilge and the outlet or third side to the engine circulation supply (all as shown on the accompanying drawing).

It is also possible to use two separate globe valves in the same manner instead of the 3-way valve, but the installation is not quite so simple. In order to prevent clogging by stray particles of wood, shavings and general debris which somehow or other is always present, a strainer must be provided. A strainer over the end of the suction pipe will not do, for the reason that the orifices will invariably become clogged with this debris and the engine will consequently suffer from lack of cooling water.

A better strainer can be made by fashioning out of $\frac{1}{4}$ -inch galvanized wire mesh a strainer to fit in between a pair of frames at the low point, and perhaps square in shape. Its height will be governed by the available space in the bilge. This strainer with its large area will serve for a long time without requiring cleaning, and when it does need looking after it is a simple matter to take it out for cleaning. The well formed by this strainer will permit the bilge water to flow rapidly and keep the pump well supplied.

The 3-way valve should be so adjusted that it will be open on one side or the other and never entirely shut off. It will be necessary to watch very carefully when pumping from the bilge, as there is the greatest tendency to start the pump, go for a ride and forget all about it. There is grave danger here of ruining your engine, so be careful to swing your pump back to sea water when your bilge is clear.

F. W. H.,
New York City.

Keep Out the Silt

PUMPING out the bilge is a job that no one likes and it is generally neglected until the water gets so high that the job must be done. Having been so long neglected the ordinarily unpleasant job becomes a back breaker and you wish that there was some way of making the circulating pump on the motor do the work.

The difficulty has always been in preventing the sand, grease, chips, bits of waste, etc., that usually collect in the bottom of a boat, from being drawn into the suction and clogging the pump or pipe line at some inaccessible place. The dirt, etc., may even pass through the pump, especially if the pump is of the plunger type and lodge in the water jacket of the motor, where it stays and collects, causing the motor sooner or later to overheat due to faulty circulation. The grease and oil soaked bits of miscellaneous material may pass through the motor without trouble, but on reaching the muffler, as some of it is sure to do, they will stick fast and burn or char from the heat of the exhaust, clogging up the muffler. Unless you can be absolutely certain that none of this bilge accumulation will be drawn into the circulating system don't attempt to pump out the bilge with the circulating pump.

The little strainer described herein has been designed to make pumping out the bilge with the circulating pump safe. The tank is made from copper or galvanized sheets seamed and soldered. Six inches diameter by 6 inches high will be found about the right size for a pump having half-inch connections.

Near one side of the top a hole is cut and about six threads from a $\frac{3}{4}$ -inch coupling is soldered on. Alongside of this is soldered five or six threads from a 3-inch or 4-inch coupling to receive a pipe cap to which the strainer is attached. The brass ring and cap from a bath-room floor trap makes a neat finish when the tank is placed below the floor with the cap flush. The center of the cap is tapped for $\frac{1}{2}$ -inch connection to the bilge.

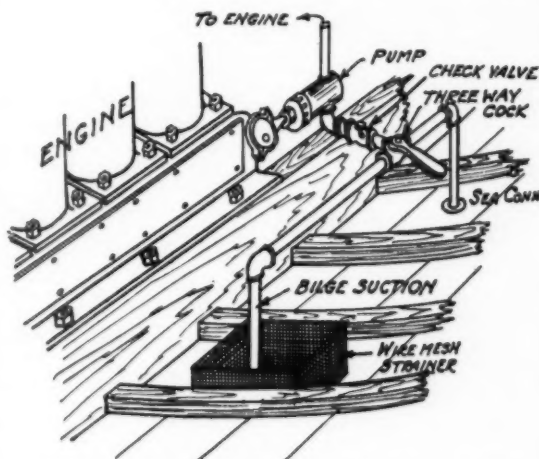
A $\frac{3}{4}$ -inch nipple is tapped inside for $\frac{1}{2}$ -inch thread into which a short $\frac{1}{2}$ -inch nipple 3 inches long is fitted or a $\frac{1}{2}$ -inch ring may be used and a nipple threaded down to screw in the desired distance.

The screen or strainer $\frac{1}{4}$ -inch smaller than the cap is cylindrical, and made from No. 20 mesh brass or copper cloth seamed and soldered. This strainer is fastened to the plug but it must be removable for cleaning. This is accomplished by fastening with cap screws or solder a brass ring to the inside of the plug. Equally spaced around the circumference of the ring are three rivets or screws which are engaged by corresponding slots cut in a ring which is soldered to the strainer. The slots in the strainer ring are cut to a pitch so that they are really sections of a screw thread and jam tightly on rivets when turned up. A vertical section at the beginning of the slots is punched up or raised so that the rivet head may pass and enter the slot. This is the same idea as is found on many preserve jar cover fastenings.

The connection between the strainer tank and the pump is made through a 3-way cock so that either the bilge or overboard intake may be used. The bilge connection to the strainer is at the center of the cap so that all dirt, etc., remains inside the screen cylinder. The most satisfactory method of making these connections is by means of rubber hose held in position by hose clamps. To work properly the strainer tank and all connections must be air-tight.

The strainer tank may be located anywhere in the boat, preferably in an upright position near the pump-well so that any clogging material will be arrested in its progress before much pipe has been traveled through.

W. B. M., Newburgh, N. Y.

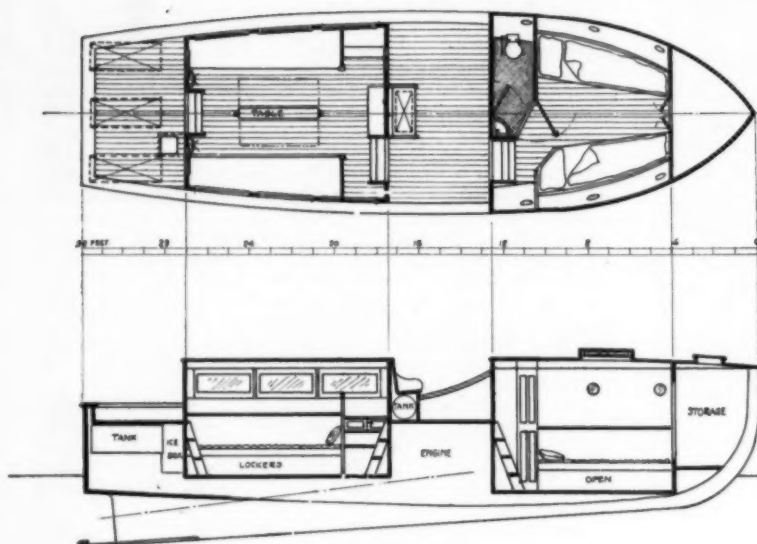


F. W. H. states that a 3-way valve is a very simple and compact device to pump the bilge dry

The Best Arrangement for a 32-Foot Cruiser

Answers to the Following Prize Question Published in the May Issue

"Suggest the most desirable interior arrangement plan for a 32-foot cruiser using diagrams, if necessary"



L. R. K. main advantage is that the beds, clothes, storage, and toilet are in one cabin not used for anything else, which keeps the living cabin aft clear of all dirt and grease

Bridge-Deck Type Ideal

The Prize-Winning Answer

IN giving my suggestion for the layout of a 32-foot cruiser, it is natural that I would favor the bridge-deck type, for this is my ideal, although 32 feet is rather short.

The main advantages of the layout follows: The beds, clothes storage, and toilet are in one cabin not used for anything else; the engine and accessories have a compartment for themselves, confining all dirt and grease to this part; the after cabin forms the living room of the boat with the galley and table; the decks are high, giving an unobstructed view.

The first 4 feet is partitioned off into clothes closets, full length, having doors into the cabin, and a hatch above. Part of this space is used for a chain locker.

The berths take the next 6½ feet and have open bottoms, for storage under them.

The toilet room takes 2 feet more, and the door to it into the cabin has a large mirror panel in it. There is also a wash basin, and also a door into the engine compartment.

This makes the forward cabin 12½ feet, with the companionway on the starboard side, and a skylight over the berths.

The engine compartment occupies 5 feet, and here are grouped all the accessories, such as pumps, battery, tools, etc. Over this is the bridge-deck, having a hatch over the engine which can be easily removed or opened when extensive work is being done on the engine, or it is removed entirely, for shop repairs. On this deck against the after cabin there is a seat about 3 feet long, under which the water tank is located.

The after cabin occupies 9½ feet and access to it from the bridge deck is by the companionway on the starboard side. On the port side there is a drop sash looking out onto the bridge deck for which the cook will thank you. The forward end of this cabin is used as the

galley, with the necessary closets, stove, etc. There are two berths with lockers under them, and between is a permanent drop leaf table, with a post at each end, supporting it, and running to the roof, materially reinforcing this roof which will be used a great deal for sitting and walking upon. At the forward end is a door into the engine compartment. There are three drop sashes each side, and one each side at the back, with the companionway at the center.

There is some question whether the after deck should be as low, or as high as the bridge deck. I have shown it the same level as the bridge deck, and located under it two gasoline tanks and an air tank. If desired, the water tank can also be located here, but it will not flow out by gravity. This will place all the tanks as far away as possible from the front cabin, reducing the annoying swashing noise heard there.

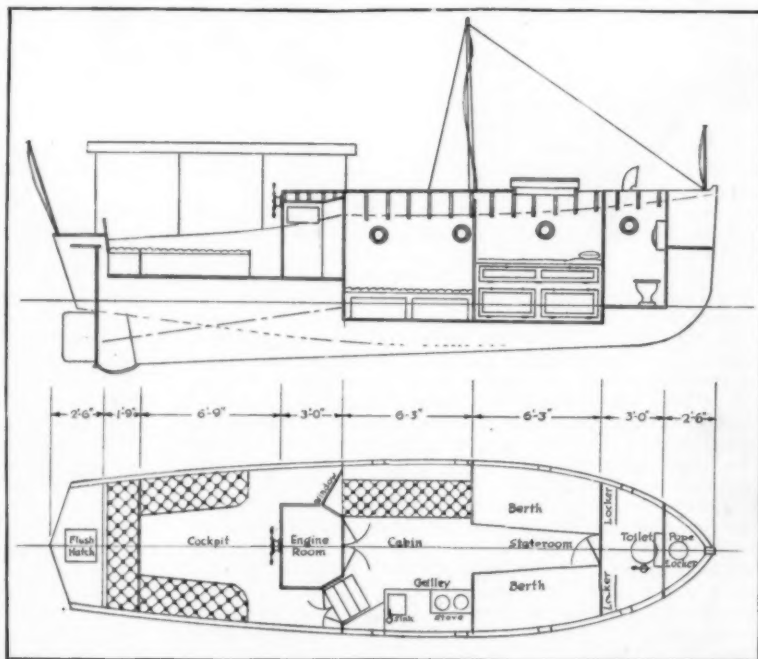
There is a hatch in the floor at the starboard side to admit the ice to the top of an ice-box under deck. This places the ice-box at the coolest part of the boat.

Access to the food compartments is by doors opening into the cabin. If a coil of lead pipe is inserted in the ice compartment, connected to the water tank, cold water will be on tap. (A necessity after July 1.) At the opposite side of the cabin are doors opening into the space under the deck where the tanks are located.

It will depend on the engine whether the length given is sufficient for this compartment. More space can be gained by reducing the length of the aft cabin if desired, but the forward cabin cannot be shortened. The accompanying sketch will show the idea of the layout, but no construction details are shown.

L. R. K.,

Philadelphia, Pa.



Uniformity as well as comfort were considered by G. A. C. in designing his interior. The companionway back of the galley affords ease in handling provisions

My Ideal Auxiliary

No. 6, Volante—A 25-Foot Waterline Yawl

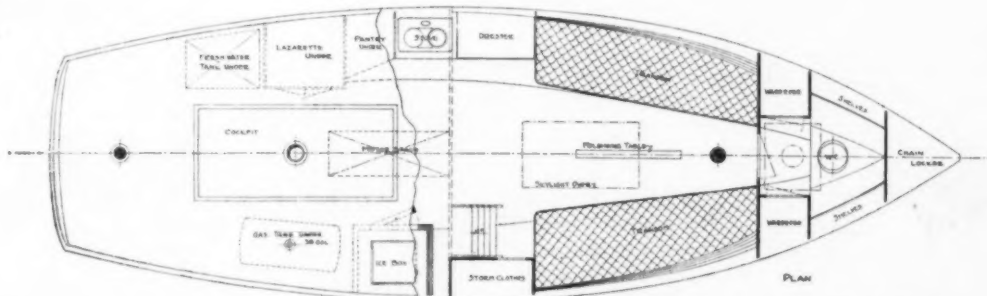
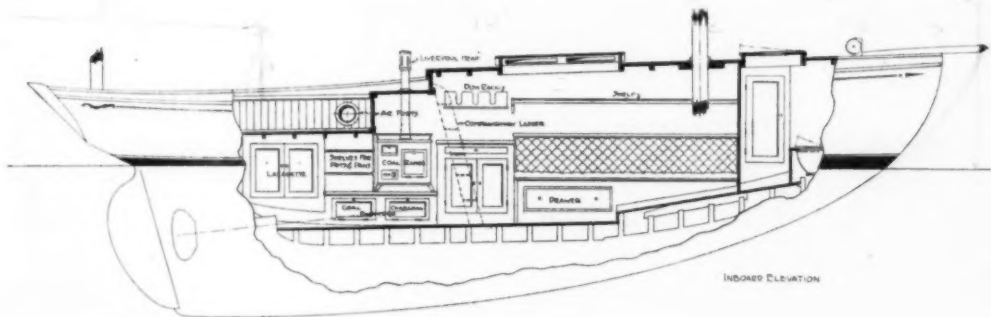
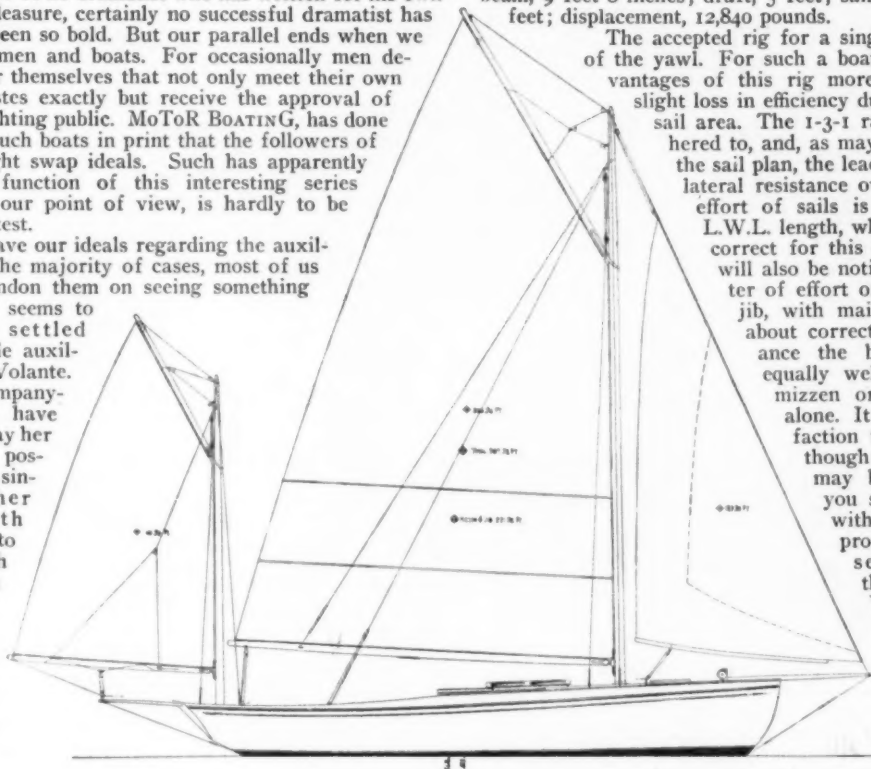
By Philip L. Rhodes

WE know of no dramatist who has written for his own sole pleasure, certainly no successful dramatist has ever been so bold. But our parallel ends when we consider boatmen and boats. For occasionally men design boats for themselves that not only meet their own individual tastes exactly but receive the approval of the entire yachting public. MoToR BOATING, has done much to put such boats in print that the followers of the sport might swap ideals. Such has apparently become the function of this interesting series which, from our point of view, is hardly to be classed a contest.

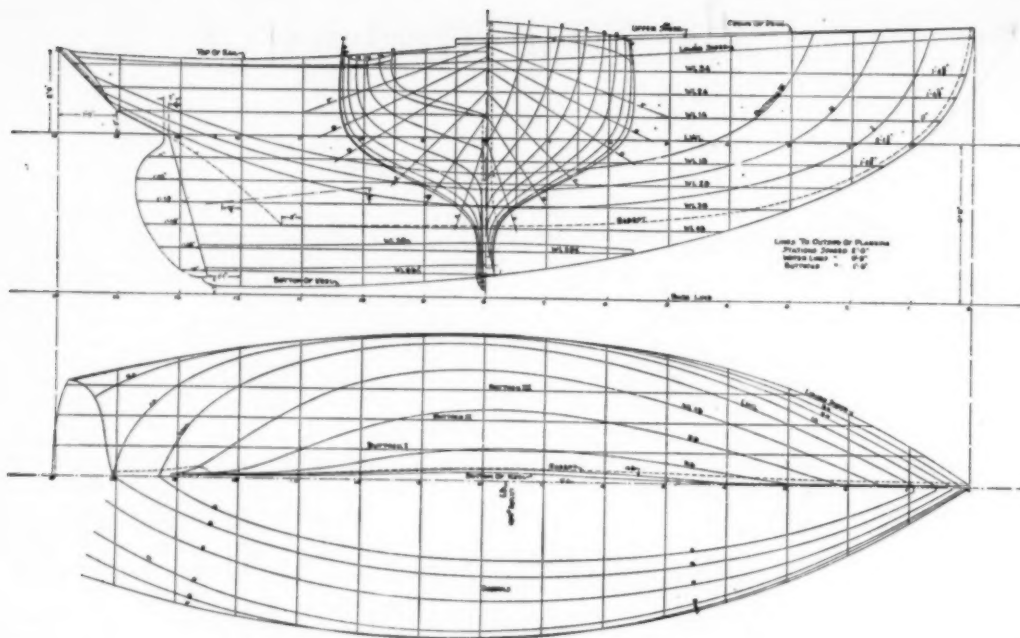
All of us have our ideals regarding the auxiliary and, in the majority of cases, most of us willingly abandon them on seeing something better. Mine seems to have finally settled upon the little auxiliary yawl Volante. In the accompanying plans I have tried to display her as clearly as possible. Being a single-hander, her overall length was confined to 30 feet, which is about the practical limit for such. The other dimensions are: L.W.L. 24 feet 9 inches;

beam, 9 feet 8 inches; draft, 5 feet; sail area, 587 square feet; displacement, 12,840 pounds.

The accepted rig for a single-hander is that of the yawl. For such a boat the obvious advantages of this rig more than offset the slight loss in efficiency due to dividing the sail area. The 1-3-1 ratio has been adhered to, and, as may be noticed from the sail plan, the lead of the center of lateral resistance over the center of effort of sails is just .03 of the L.W.L. length, which is considered correct for this type of boat. It will also be noticed that the center of effort of the mizzen and jib, with mainsail dropped, is about correct. With this balance the boat will handle equally well under jib and mizzen or under mainsail alone. It is of some satisfaction to know that although your mainsail may be carried away, you still are provided with cloth and in the proper proportions to see you safely through. However, Volante has been provided with extra sturdy spars and standing rigging, so that no such trouble is



Sail plan, inboard profile and arrangement plan of Volante. Upper drawing scale, $\frac{1}{8}$ inch equals one foot; other, $\frac{1}{4}$ inch equals one foot



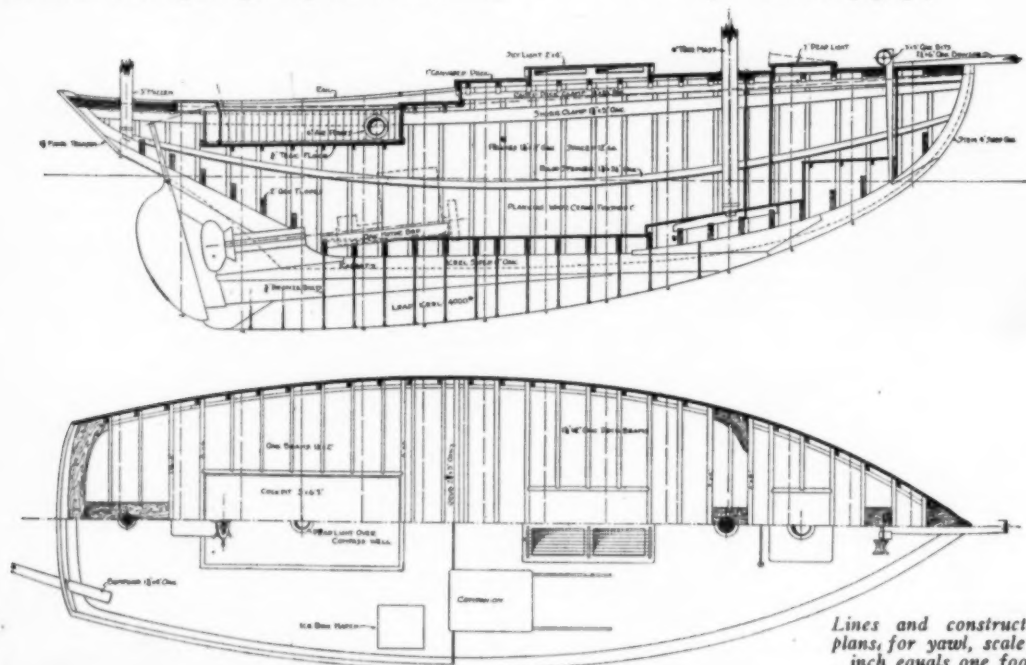
likely. All halyards are cleated within easy reach of the cockpit while the jib is sheeted to a traveler. The bumpkins are of the A-frame type not only for rigidity but to provide a better footing when furling the mizzen.

Most of us are agreed that the yawl rig is preferable for a single-hander so we must look to the hull form and accommodations as the criterion. Volante has been given the full rocker keel. This gives the entire keel length a chance to cut solid water. It also provides a long and liberal lateral plane so that it may get a good grip on the water and steer a straight course. Besides helping her weatherly qualities this type of keel, by virtue of its depth forward, makes a much stronger hull. The overhangs are short, which is always desirable in a sea boat, as it reduces pounding to a minimum and makes for a stronger hull. This produces a deep counter, so that a firm step for the mizzen mast may be had. The deck-line is full, ending with a broad transom which gives good spread to the mizzen.

shrouds and large deck room where it is most enjoyably felt. The sheer is lively and the sides are given a good tumble home while the transom is curved to give the little ship a touch of character. In section she shows considerable dead rise throughout the entire length, making for an easy boat in a seaway. Though a chunky little boat her form is fine enough to permit good speed in light air, and her bilges, while not hard, are firm enough to keep her up in a heavy blow. This initial stability is appreciated when reefing, as it is somewhat of a hazard to reef when the boat has a large list.

The auxiliary power is to be a two-cylinder four-cycle motor of 12 h.p., turning approximately 550 r.p.m. It will be noticed that the propeller is set deep where it acts upon undisturbed water, and its wake strikes the center of the rudder to better the maneuvering qualities. The pitch ratio of the propeller should be about .0 or 1.

(Continued on page 56)



Lines and construction
plans, for yawl, scale $\frac{1}{8}$
inch equals one foot

And the Soldiers Called Her Slum

Like the Doughboy's Stew from Many Ingredients She Came, She Was Made by Amateurs Too but She Did Her Duty Just the Same

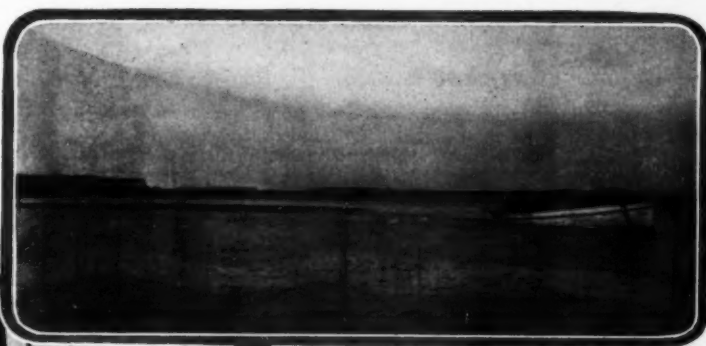
By Captain John B. Woods

DOWN in southern France there is a small, pine bordered lake called by the natives Etang d'Aureilhan. Years ago there was a village where the water now lies, but the wind brought in sand from the ocean shore, dammed the stream that flowed through the place and drove the inhabitants away to higher ground. Then the French foresters conceived the plan of arresting the dunes by planting pine trees, and in the course of time there grew up all about splendid forests of long-leaf pine.

When the American Army began to flow toward France, hundreds of foresters and lumbermen went along to organize the production of timber products for its many needs. They were followed by thousands of other woodsmen, and within a few months American logging camps had sprung up in all the wooded regions of that country. Naturally Aureilhan Lake came under observation of the officers who were searching for timber, and soon a company of our lumberjacks pitched their camp upon the southern shore, built a great sawmill, and began to lay waste the pines.

Immediately a serious problem developed. The mill site was placed near a railroad, necessarily, because lumber was badly needed by the army, and rail outlets were the only quick means of

The main problem was to provide motive power for this voyage across the lake. One day an officer came upon a dismantled motor boat hull at the ocean beach, five miles distant. He went back to camp, told the captain, and they together inspected the prize. No owner could be found, and finally they obtained permission from the local authorities to requisition this 20-foot hull for military use. They hauled it home on a log-wagon behind a motor truck and turned it over to the chief carpenter for a general overhauling. Then they went to Bordeaux and, after several hours' searching, found a serviceable four-cylinder auto engine of 30 h.p. for sale by a garage owner. This they bought and took to a



Twice each day for over a year Slum with her four-cylinder, 30 h.p. automobile motor hauled a raft of 500 huge logs across the little lake in France where American soldiers were getting out lumber for use by their comrades. Her hull was discovered a derelict abandoned on the beach but Yankee ingenuity made a boat of it

shipping the product. But the greater portion of the timber lay across the lake and along a swift stream that came down from another lake farther north. From the mill to the nearest tree was a distance of two miles, all water. But among the officers and men of this forestry organization were several who had grown up in our north woods, and they turned immediately to the old-time method of bringing logs down to mill in the northern states. Pine such as this was heavy, but they decided that by cutting the trees and allowing them to lie upon the ground several weeks before lopping off the tops and branches, the sap would be sucked away from their boles and the wood rendered light enough to float. Then they planned to drive the logs down the stream to the lake, where they might be caught in bag-booms, or "brails," for movement across the lake to the saws.

machine shop for storage until needed for installation.

Back at camp they found the hull already in the water and apparently serviceable. So they went over her with steel tapes, and returned to Bordeaux after a technical conference. Probably such strange methods may appear childish to the experienced motor boatman, but these officers were novices in operation of such craft, not to mention construction, and every step called for arguments and misgivings. But the reducing gear finally was designed, along with universal joints and propeller, and after several days the auto-engine came down from Bordeaux with its shaft and other appendages and entered upon its new lease of life as a marine power plant.

The first or trial run showed remarkable speed for such a

(Continued on page 62)

Timing of Engine Valves

Should you remove the camshaft in overhauling the engine, you will note a series of punched marks around two of the teeth of the camshaft gears and another series of punched marks on one tooth of the crankshaft gear. This single tooth of the crankshaft gear should mesh in between the two teeth of the camshaft gear that are punched. It is frequently the case that after an engine has been in use for a long time, wear occurs on the bottom of the valve stem and on top of the tappets, causing a clatter in the valves. The thumb nut over the valve cover plate may be taken off, the cover plate removed and then the lock nut on top of the tappet rod can be loosened so that the tappet adjusting screw may be moved up and down to the correct position. The tappet rod must be held in position when this is being done, otherwise it will turn; the screw may then be turned to position so that there is a thickness of an ordinary calling card or about $3/1,000$ of an inch clearance between the top of the tappet and the bottom of the valve stem, which is the proper adjustment. All adjustments must be made when the tappet is in an extreme downward position or after the cam pressure has been entirely relieved from it.

Valve Grinding

Whenever valves become dirty they should be ground. This is evidenced by loss of compression and poor operation, generally together with a loss of power. Very frequently valves need to be just touched up a little or polished on account of being dirty or possibly rusty from laying up over winter. In grinding valves do not use a very heavy pressure on the valves, but lift them off of the seat while grinding, a good many times; rock the valves back and forth with a screw-driver and do the grinding with a paste made from fine emery and oil mixed. The first operation is to take off the valve cover plate, then take off the valve plug No. H-14 above the valve. At the bottom of the valve stem there is a little steel cup that holds the spring; this cup should be raised sufficiently to take out the U key which goes through the valve stem. When this is removed the valve spring cup can be dropped down and the entire valve spring will drop so that the valve may be removed through the cylinder head. It will sometimes be found in removing the valve that the stem gets very tight. In a case of this kind, use fine emery cloth and polish the valve stem until it works very easily up and down in its guide. This stiffness in the valves is caused by either rust or carbon. After rotating the valve back and forth on its seat until you get a bright true surface all the way around the valve and also all the way around the valve seat, you will then probably have your valve properly ground in. To determine whether

or not the valve is properly ground in, get a tube of Prussian blue oil paint or a mixture of lamp black and oil and spread either of these very thinly on the valve seat after you have wiped it clean of the emery and oil; then by taking the valve No. H-49 and putting it back on the seat and rotating it back and forth you will find whether or not every part of the valve touches properly on the valve seat; if there is any part of the valve which does not touch, it will remain bright and all of the parts which do touch will, of course, be marked by the Prussian blue paint. When the valve is properly ground in, a perfect circle of blue is shown all around the valve seat and the valve itself when they are tested.

Carbureters, Magnetos, Electric Starting System

In the event that the carbureter or the electric system goes wrong it is best to return those parts to their original makers as the Kermath people do not manufacture them and in most cases where the owner of the boat cannot make the repairs himself and sends them to the engine maker the latter must in turn send them to the original manufacturer, with a loss of time that could have been saved by sending them direct in the first place. As the care of these parts varies with the make of each, it is manifestly impossible to give definite instructions here as to their care, but the makers always attach a booklet of instruction as to the way they should be taken care of.

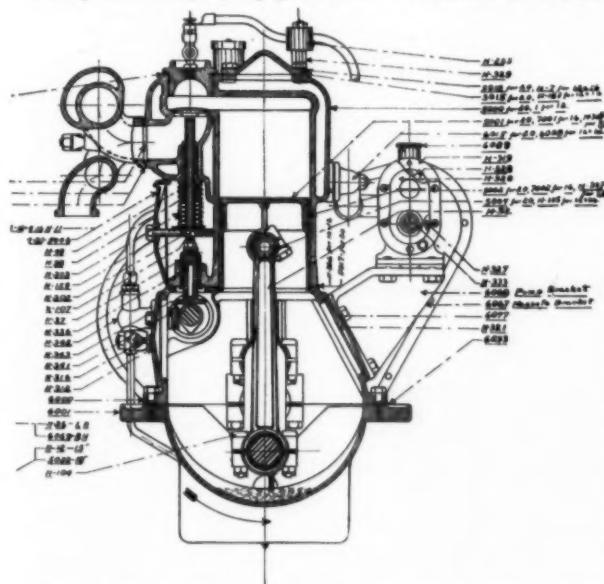
Taking Up Connecting Rods and Main Bearings

Should you desire to give your engine a complete overhauling by taking it apart, great care should be exercised in not getting the parts mixed. If the two halves of the connecting rod are tight together so they will not take up enough to make the bearing snug, either the boxes themselves may be filed, providing the engine is one of the earlier Kermath types where shims are not provided, or on the type where shims are provided, the shim may be filed on the solid shims and on the laminated shims, all that is necessary to do is to peel off one of the laminations or sheets of brass making up the shims which is only $2/1,000$ inch in thickness. It might be suggested taking off, one from one side at a time and taking up the bearings very gradually so as not to get it too tight; a bearing should be free to move about when it is tightened, if taken up too tight the bearing will bind when the engine is running under full load and will be liable to burn out. After the bearings have been taken up so that they are snug on the shaft without binding, the nuts must be absolutely tight and must not be backed away for inserting the cotter key. If it is necessary to turn the nuts a little more in order to fit the cotter key, the best thing to do is to file it off on the bottom or else put on a washer so that it will come in a proper position. In taking up the main bearings the greatest possible care must be taken to see that they are absolutely in line. When the center bearing is drawn up tight it should not pull the shaft out of line, as will be the case if the center bearing is scraped out too much. Each bearing must be hand scraped in the main bearings until the shaft lays in the three bearings absolutely true. Each cap must be fitted separately and then the three caps put on and drawn up one at a time to see whether or not any one bearing draws the shaft out of line. A crankshaft that is being twisted at every revolution from incorrectly aligned main bearings will not stand up very long without breaking.

Care of the Clutch

The lubrication of the clutch is entirely taken care of with the engine oiling system. On the matter of the reverse band—this adjustment is outside. Attached to the clutch lever is a sliding cam, which, when the lever is pulled back into reverse position presses a pin which in turn clamps the reverse band together. By loosening the lock nut and turning the large set screw slightly to the right, the pin which the sliding cam operates is brought closer to the reverse band, in consequence of which it will make the band tighter and adjust it so that it will hold in case that it should ever be slipping. Great care should be taken not to adjust the reverse band too tight, for if it is too tight it will heat up badly and act exactly the same as a brake on your engine as the reverse band goes over the clutch drum

(Continued on page 92)



Sectional end view of the Kermath. Figures are referred to in the text

Two Long Distance Classics Revived

The Large Entry Lists in the Block Island and Overfalls Light Races Scheduled for July Indicate a Return to Normal Conditions—MoToR Boating Offers Trophy for Cruiser Championship of Delaware River

PERHAPS nothing illustrates better the revival of interest in motor boating and the big season now under way than the announcement that two of the great classic races are to be revived in July of this year. These, the New York Athletic Club's tenth annual motor boat race to Block Island, which is to take place Saturday, July 12th, and is open to cruisers, and the Delaware River Yacht Racing Association's Championship Cruiser Race, to take place July 18th and 19th. The first prize for the latter race has been offered by MoToR Boating, and there will be a Special Time Prize to the boat making the fastest elapsed time, as well as other prizes in accordance with the number of entries.

The Block Island race will, as usual, be under the sanction of the American Power Boat Association, with the course from Huckleberry Island to the West Harbor of Block Island, disregarding buoys, a distance of 100 nautical miles. The starting line will be between two boats flying the club flags anchored to the east of Huckleberry Island. The warning signal will be fired at 11:50 a. m., the preparatory signal at 11:55 a. m., and the starting gun at 12 o'clock noon. The finish will be at the committee boat, flying the club flags and at night red and white lights. This line will be inside of West Harbor. In order to check possible errors, each boat will take its own time when light on inner end of West Harbor Breakwater bears south.

Should the number of starters warrant, the boats will be divided into two classes, according to size, and prizes awarded in each class. Measurements will be under Rule V of the American Power Boat Association, and all competing boats shall be measured by the official measurer of the Association, Frederick K. Lord, 120 Broadway, New York, or by one of the assistant measurers. Names and occupations of the crew must be handed to the Committee in writing at least one hour before the start. Each boat must carry a suitable tender, two anchors and cables, lead line, compass, charts, bucket and be fully equipped according to A. P. B. A. rules.

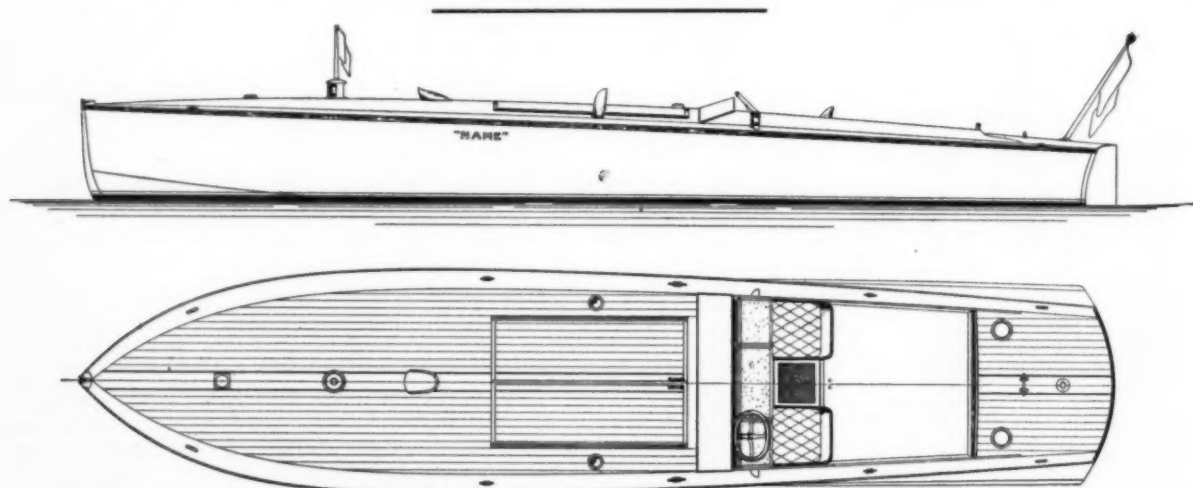
Boats must be operated by explosive engines using either gasoline, kerosene, alcohol or producer gas. No ingredient to increase the power of fuel is permitted, and the use of sails is prohibited. Boats must report to the New York Athletic Club Yacht House, Travers Island, before 10 a. m. on the day of the race for inspection. The time allowance

and the protests will be under A. P. B. A. rules. There will be a first prize and a second prize if five start, and a third prize if seven start. An A. P. B. A. record certificate will be presented to the boat making the best corrected time in each class. The entries close at noon, July 5th, at which time measurement certificates must be received, and they should be sent to Harry Anderson, chairman of the Regatta Committee, 58 West 59th Street, New York.

The Delaware River Championship Cruiser Race has been sanctioned by the Racing Commission of the American Power Boat Association under the title of "The 1919 Handicap Cruiser Championship of the Delaware River." A Championship Record Certificate will be awarded to the boat winning in addition to the prize contributed by MoToR Boating. The 1919 A. P. B. A. rules are to govern the race. A boat to be eligible to compete must be the *bona fide* property of an amateur member in good standing of a club enrolled in the Association. Boats are to race in one class.

The course is to be from the Riverside Yacht Club, Essington, Pa., to Overfalls Light Vessel and return. This will be a surveyed course and the distance will be stated in printed instructions furnished the day of the race. The start and finish will be from the Club House of the Riverside Yacht Club. All boats must report to the Regatta Committee at the Club not later than 3 p. m., July 18th, when each captain will be furnished with printed instructions and time of start. Entries must be made in writing to the secretary of the Regatta Committee not later than noon, July 17th, and certificate of rating should accompany entry. Positively no entry is to be accepted after that date and hour.

All boats must be measured by the Official or Assistant Measurer of the A. P. B. A., in accordance with the Association's rule governing sanctioned races. The race is to be under the control and direction of the Regatta Committee of the Delaware River Yacht Racing Association, together with the Assistant Official Measurers and Timer appointed by the Racing Commission. They will act as judges. However, no member of this committee who is the owner or part owner of a boat sailing in this race shall take part in the decision of any question in relation to said boat. The Committee reserves the right to reject any entry. Entry blanks and additional information may be obtained from the Secretary, Joseph W. Broomhead.



Profile and plan of one of the Hoosier type stock designs, which can be supplied complete in ready to build form by the John L. Hacker Boat Co., of Detroit, Mich.

The Possibilities of Standardization

Some of the Advantages to Both the Owner and Builder
That Could Be Obtained by the Production of Stock Boats

By F. T. Lander

MEN are inclined to think alike on the subject of most sports, but when it comes to boating their ideas seem to scatter in a thousand different directions. Whether it be golf, baseball, tennis, automobile or what not, the regular equipment offered by the manufacturer is pronounced good enough, for such pastimes are limited as to character and scope to a degree where but one general type and size of equipment is necessary. All shotguns, for instance, are very much alike and the same is true of rackets and even automobiles, but the instant the boating field is entered we find a sport so pronounced as to variety of interest and unbounded in the matter of cost that the difficulty of adopting a stock model immediately reveals itself.

Certain styles of boats will not lend themselves to the stock model idea. Where expense is of no consequence the stock boat will not apply, for the main purpose in standardizing a product is to reduce the cost. There must be a popular demand as well, and with these two factors we may eliminate the larger craft, the high-speed open boat and the express cruiser. There remains a class of open and cabin boats of say forty feet and under, a fleet which constitutes perhaps eighty per cent. of all pleasure craft from which the real fun and enjoyment of boating emanates. The owners of the staunch little runabout and of the vast variety of cruisers look at the matter from the practical standpoint, and as they obtain the greatest amount of sport for the least expenditure of money it would seem that no serious difficulty would be encountered in developing a few standard models that would appeal strongly to this class.

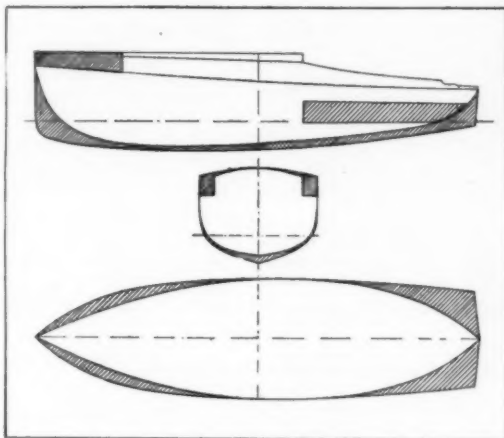
The two principal

obstacles that have stood in the way are the extreme fastidiousness of the prospective purchaser and the apparent lack of appreciation on the part of the builder as to what is necessary to meet a popular demand. Ideas vary tremendously in connection with minor details such as rake of stem.

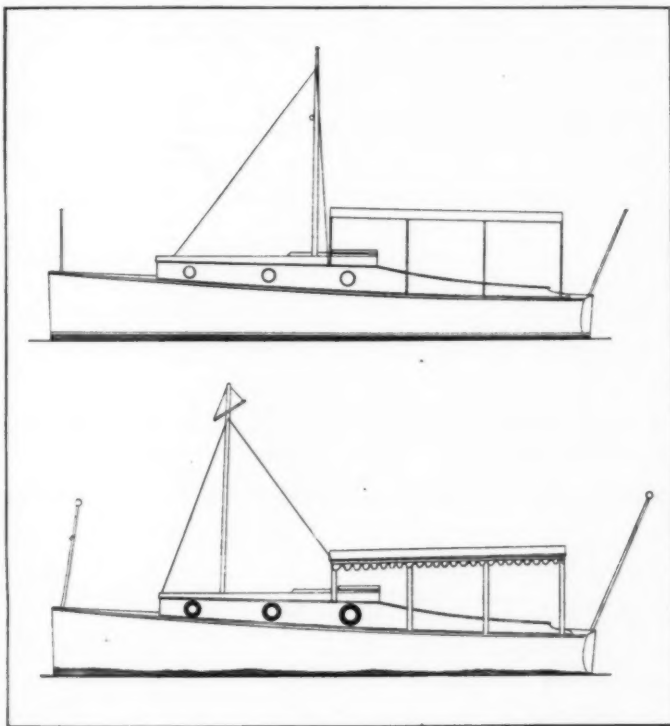
Some want them plumb, others with an excessive overhang, while still others will have a liking for an intermediate angle. The same applies to the stern, whether it be V-transom, canoe or one of the several other types, and then the question of beam is a mooted one as well. Next comes the cabin and here again we meet with a diversity of opinion. Even though one standard type of hull was adopted there would be a dozen or more varieties of upper works with as many different ideas as to accommodations. Then the matter of outgrowing the boat must be considered for they all have a peculiar habit of shrinking. A craft that will suit every purpose for the first season or two will diminish in size as

one's ideas expand, so that after possibly three or four years the owner looks about for something bigger and better.

But what does he find? Very little besides a miscellaneous collection of a thousand different shapes and styles hardly two of which are alike, and yet from this vast assortment it is difficult indeed to locate a boat that quite suits his fancy; a great many are homemade or rebuilt affairs and others are of odd design or startling proportions, but all show more or less the conglomeration of ideas that have been running rampant for so many years. This flood of thoughts expressed in so many ways has been extremely beneficial in developing the sport, but as of late no radical departure from what is considered



The shaded areas indicate the additional available space that can be had in a raised-deck cruiser as compared with a trunk-cabin boat of the same length and beam



What otherwise might be a fair looking outfit is often spoiled by such details as the rake or rigging of the flag staff and signal mast, set of the awning, or even painting the port hole frames. It is such little points that count

good practice has shown itself, it would seem that the time has arrived when some headway might be made with a stock design.

Heretofore when placing a stock boat on the market the apparent aim has been to catch the eye of the novice. Mahogany trim, polished brass, and elaborate furnishings make a strong appeal to a certain class it is true; but as such details are of secondary consideration to the great majority of boatmen, it would seem wiser to view the matter from their standpoint. As a rule, the old hand demands not only serviceability and comfort but good looks as well. What he wants is an up-to-date smart appearing craft that really resembles a boat. The sheer should be a fair line throughout and the proportions in general must harmonize.

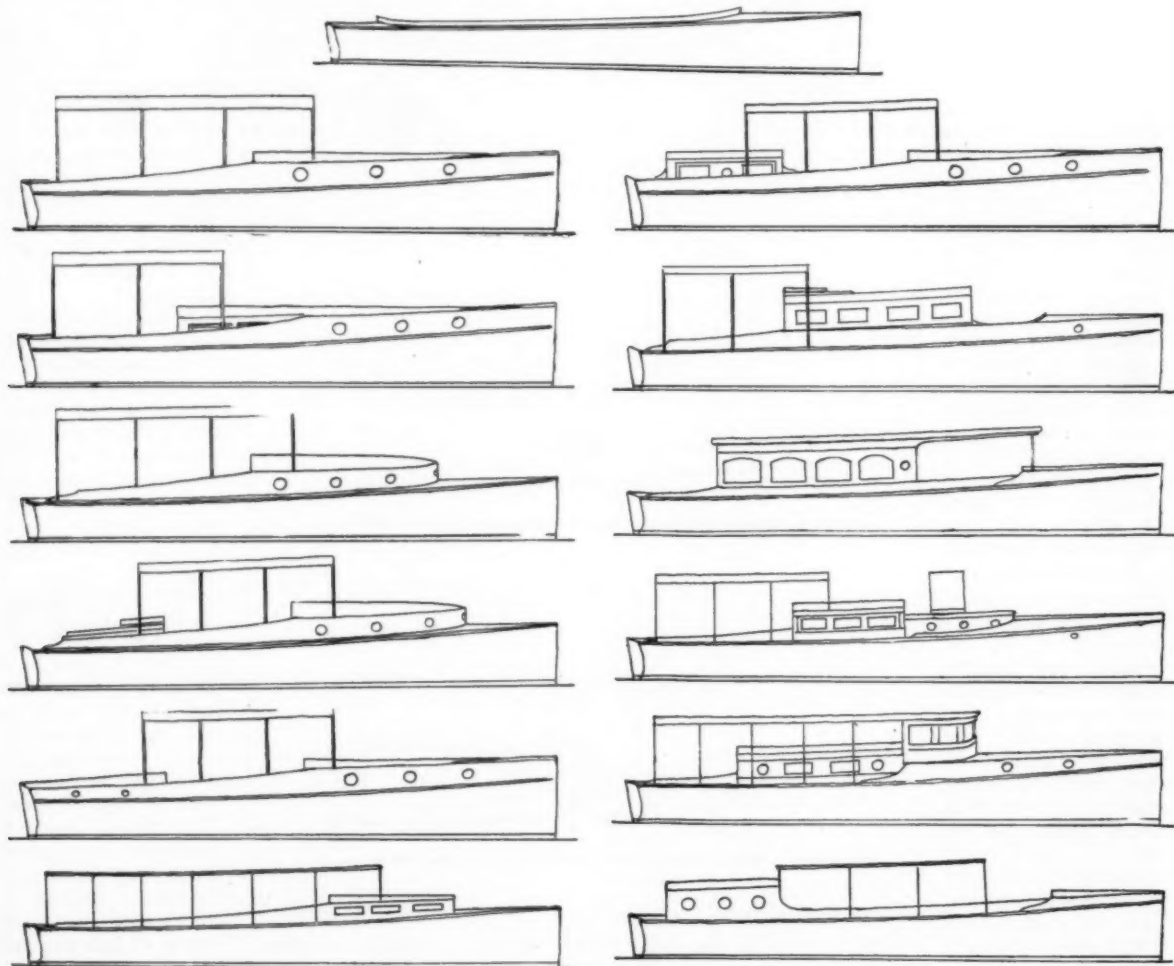
Some boatmen take great pride and pleasure in keeping their craft up in shipshape fashion. Things about the boat must be just right from their point of view and at times some of the very stunts that are practiced will work wonders in improving the appearance. The height and rake of the flag staff and signal mast, for instance, are important and likewise the set of the awning. What otherwise might be a fair looking outfit is often spoiled by lack of balance in connection with such matters.

Not infrequently we run across a fellow who might be considered a trifle too fussy as to details. An auto steering wheel, for example, would never do. Nothing but the old-fashioned kind with spokes to grab will

suffice, for most likely his boating career started before the advent of the automobile and he considers such modern equipment out of place on shipboard just as he does the electric horn. When such a man pulls the cord he expects to hear a regular blast. A honk, on the other hand, will likely cause him to wince. All this goes to show what a variety of ideas exist among boatmen and how difficult it is to please them.

Now, granting that it is impossible to develop a stock boat that will meet with the ideas of everyone, it would seem that a sound basis at least could be established by incorporating into one boat the best features applicable to each general class. Let us take as an example the small cruiser and endeavor to ascertain what should be necessary to make it a success. In the first place the price must be reasonable and in order to permit this we should aim to have things plain but serviceable, for if the boat is going to cost as much as one built to order, no headway at all can be made as has already been proven. Next we want all the boat we can get for the length and therefore no waste space can be afforded. Frequently we hear about some "big little boat" and the claim that "every available inch has been utilized," yet when it comes to a matter of analysis it is often apparent that the owner has paid dearly for his craft; there being enough waste room to go a long way toward another. Such a boat could well have been several feet shorter with a consequent saving perhaps of several

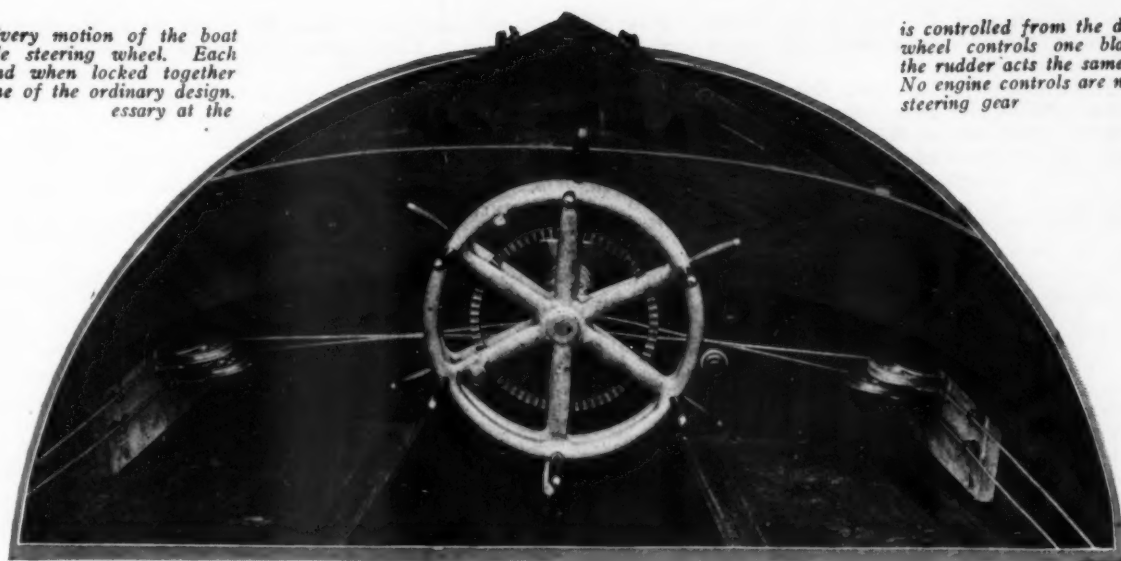
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Starting with a stock hull the above sketches indicate what a variety of types can be obtained by merely changing the cabin structure

Every motion of the boat
ble steering wheel. Each
and when locked together
one of the ordinary design.
essary at the

is controlled from the dou-
wheel controls one blade,
the rudder acts the same as
No engine controls are nec-
steering gear



A Rudder Which Acts As a Reverse Gear

A BOAT that is capable of going astern with the engine and propeller running in a forward direction. A boat able to turn about in its own length. A boat that can be maneuvered without headway or sternway. It may read like an Arabian Nights tale but is nevertheless true. Never before has a power-driven boat of ordinary design been manageable without steerageway little less headway.

There is a little 25-foot open launch up in the Mohawk River at Schenectady, owned by Deputy State Engineer W. B. Landreth, that can do all of this, and more too, and the entire secret of its mysterious actions are hidden in an extra plate that has been added to the rudder.

The rudder on Mr. Landreth's boat is the invention of H. O. Westendorp, of Boston, Mass. It consists of two steel plates 3/16-inch thick, each the same size as the normal rudder for this type of boat except that they do not extend forward of the rudder post as in the balanced rudders generally used. Ahead of the rudder post is a vertical steel plate or fin, fixed parallel to the keel, extending from the shoe to the horn timber and about 3 inches wide, fore and aft.

The rudder post consists of a steel rod inside of a steel tube. One plate of the rudder is attached to the tube and the other to the rod. This arrangement

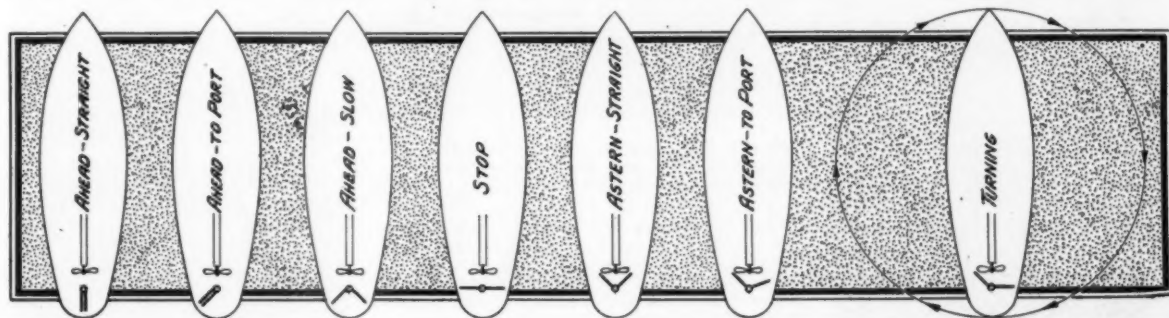
A New Device with Which It Is Possible to Steer, Control the Speed, Reverse, and Turn without Headway in the Boat's Length

allows the two blades of the rudder to act about the same as the two leaves of a hinge. In fact, it closely resembles an ordinary hinge. At the top of the rudder post there are two large sheaves

or drums, one attached to the tube and the other to the rod. Steering cables are led from these drums to the steering wheel at the forward end of the cockpit.

As with the rudder, the steering wheel is similar to those in general use except that it consists of two wheels mounted on the same spindle. To each wheel is attached a drum about which is wound the steering cable, led forward from the rudder post in the usual manner. On one spoke of the after wheel there is a pawl or latch that engages a circular rack on the forward wheel by which the wheels can be locked together at any point and made to turn as one. There is also a latch on the rim of the after wheel that engages with the forward wheel and locks the two together when the two blades of the rudder come together. When thus locked together the wheels and rudder are operated and act just the same as the ordinary steering gear.

While experimenting with the rudder it was found necessary to put a horizontal steel plate directly above the rudder blades between the rudder post and stern post and extending out at the sides as far as the end of the blades. Before this plate was put on it was difficult to go astern as the stream of water from the propeller



The diagram illustrates some of the positions assumed by the two blades of the rudder and effect they have on the motion of the boat. In every case the propeller is turning at full speed in the direction which would give the boat a forward motion

went up and over the top of the blades. Now the stream is turned to the sides and reacts against the surrounding water.

Maneuvering the boat with this device is extremely simple. With the motor running full speed in the forward direction and the blades folded back against each other the boat moves ahead at full speed. When the steering wheels are turned in opposite directions they spread the rudder blades and reduce the speed. When both blades are at right angles to the keel the boat has no headway.

As shown in the diagram, reversing is accomplished by turning the rudder blades forward of the rudder post, thus turning the stream of water from the propeller forward along the sides of the hull so that they react on the surrounding water and cause the boat to move astern. The speed of the boat when going astern is about one-third of the full speed ahead.

With the reversing gear originally installed in this boat it took twenty-six seconds to bring it from full speed ahead to full speed astern whereas the same operation can now be accomplished in nine seconds. The speed astern is controlled in the same manner as the speed ahead; by varying the angle between the rudder blades.

To turn without headway or sternway one blade is set at right angles to the keel and the other in the astern position as shown in the diagram. It has been found that to operate successfully the rudder post should be set nearly at 90 degrees to the propeller shaft.

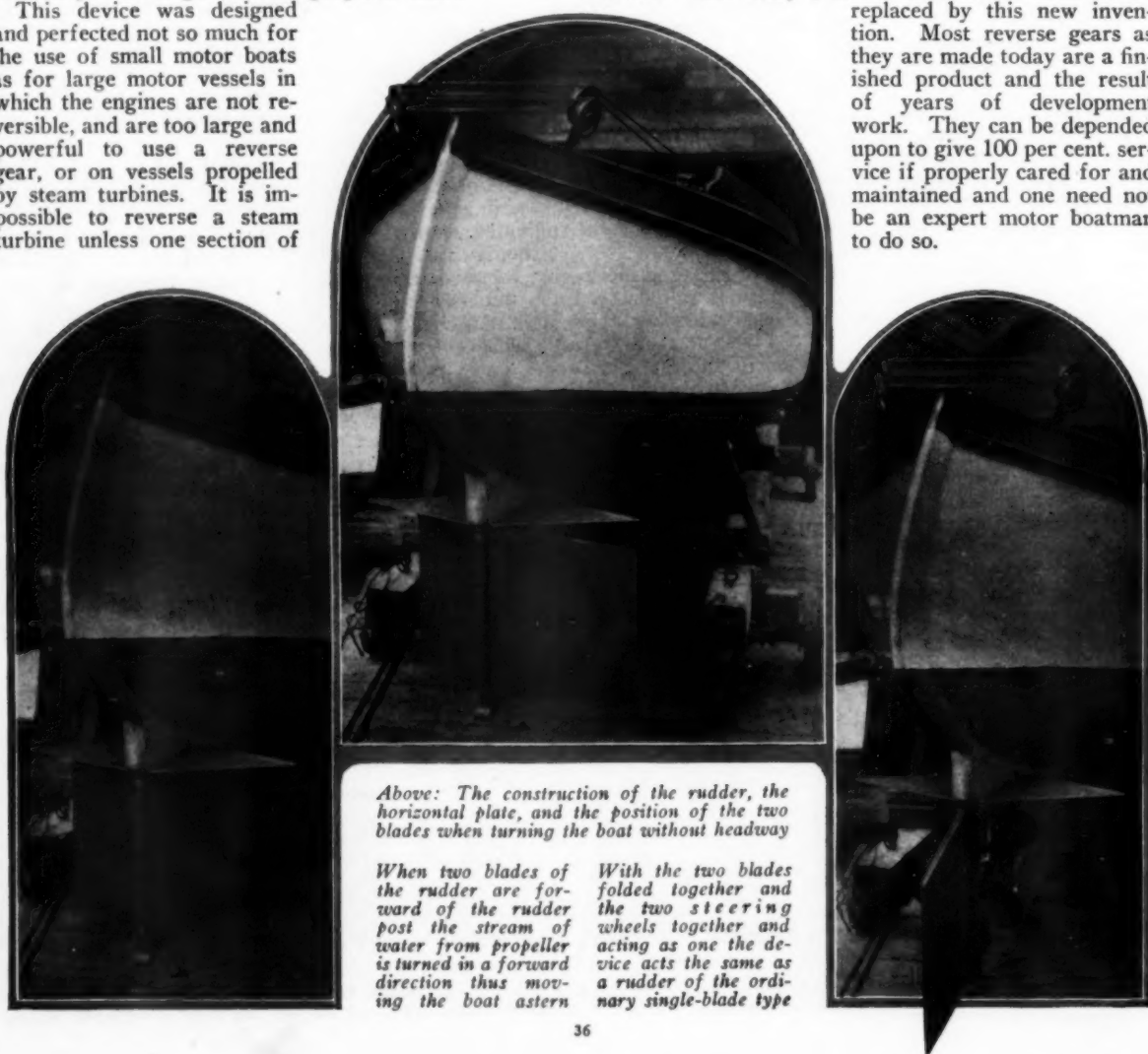
This device was designed and perfected not so much for the use of small motor boats as for large motor vessels in which the engines are not reversible, and are too large and powerful to use a reverse gear, or on vessels propelled by steam turbines. It is impossible to reverse a steam turbine unless one section of

the rotor and stator have the vanes set in the opposite direction. This construction adds materially to the weight of the turbine and also requires that considerably more space be devoted to the power plant than might otherwise be used for cargo.

Whether the practical application of this unique invention will work out in every-day practice remains to be seen. It has the one advantage that the motor can be started and run at full speed without attention as long as the boat is in operation and the entire control of the speed and direction is by means of the two steering wheels. Against this advantage is balanced the fact that the motor is not controlled for the most economical consumption of gasoline and oil. It would, in fact, prove extremely uneconomical were the boat used for any purpose where other than running at full speed ahead was the general practice. For a boat working about a fleet or docks where much maneuvering was required it would be a "gas eater" hard to beat—unless the engine controls were also brought into play.

With the present scarcity and high price of gasoline and the necessity of conserving the supply we cannot say that this device is at the present time and under existing conditions practical or desirable for small gasoline driven boats. We believe that if gasoline is to be used for pleasure sailing it should be used as economically as possible.

In other words, the modern marine reverse gear used on motor boats today is not doomed to be discarded or replaced by this new invention. Most reverse gears as they are made today are a finished product and the result of years of development work. They can be depended upon to give 100 per cent. service if properly cared for and maintained and one need not be an expert motor boatman to do so.



Above: The construction of the rudder, the horizontal plate, and the position of the two blades when turning the boat without headway

When two blades of the rudder are forward of the rudder post the stream of water from propeller is turned in a forward direction thus moving the boat astern

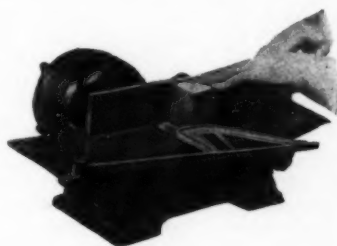
With the two blades folded together and the two steering wheels together and acting as one the device acts the same as a rudder of the ordinary single-blade type

Efficiency Devices

From time to time manufacturers put on the market improved devices which are designed to increase the efficiency of individuals and plants in doing certain work. Among these are generally a number valuable to boat owners and boat builders, in repair and construction work. In order that those who desire to use these devices may know just what they are like illustrations are published, while a short description is given in order to explain just what they are most efficient for.



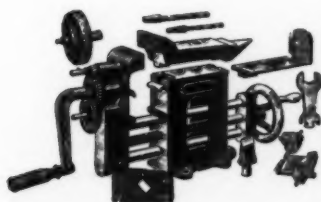
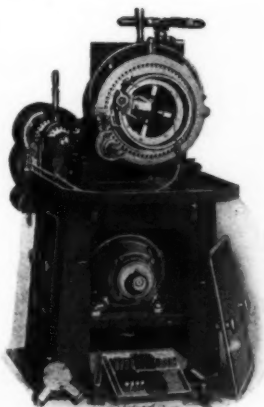
This genuine Stillson wrench may be had with either a wood or steel handle. Made by a special method of heat treating and drop forgings, additional strength and toughness is insured.



It is estimated that seventy per cent of fitting, trimming, jointing or surfacing is on work less than 4 feet long and 4 inches wide. Right here is where this bench planer fits in. It was designed especially for small work.



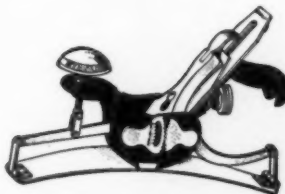
No, this is not a pistol, but it is a gun—a paint gun. The modern method of applying various kinds of paint is by the use of compressed air. It saves time and labor and better results are obtained.



Here are six tools in one. A grinding wheel; a drill press; a large vise; a pipe vise; an anvil, and a cutting hardie. This device has almost an unlimited range of work. It weighs ninety pounds and may be carried in sections.



The pipe is put into this pipe cutting and threading machine from the back, and clamped by the self centering vise, with the end to be threaded against the back of the dies. It has a range from 1 to 6 inches, which gives ample range ordinarily.



When you want to surface close up to the bulkhead this machine will do it for you. There are no levers on this machine. It travels forward automatically when the operator simply raises the handle. They come in five sizes.



These plier wrenches fill a long felt want in any tool chest. They are quick acting, self-adjusting and always take a firm grip on any object that may be clamped in their jaws. The jaws are always parallel when clamping objects of various sizes and the grip the same.



Here are circular planes that can be accurately adjusted for planing the inside or outside of circles. The face is fastened at each end to the plane body, and adjusted by a screw in the center. This construction gives great strength and accuracy.



The advantages of a changeable file holder are many. This one has a hollow handle and plain castings. It will fit all ordinary size files. The file is held in place by the collar with round head machine screw. While made of cast iron it is very strong and suitable for heavy usage.



Do not fail to write to the editor if you desire information concerning any of the above efficiency devices

The Homing Pigeons Are Returning

Boats of Southern Yacht Club Are Finding Their Nest Again
After Two Years of Adventure and Romance—Some of the
Boats Like Some of Their Owners Will Never Return

By H. H. Dunn

RETURNING one by one and two by two from the blue-green waters of the Gulf, the 238 members of the Southern Yacht Club who volunteered for war duty, and the eight motor cruisers of the Club's fleet which went down to the sea to help hunt the Hun, are coming back to the clubhouse and to the boat pen at West End, out on Lake Pontchartrain, near New Orleans.

Dressed in navy blue and in battleship gray, the men and the boats, both of whom have had a large part in patrolling the hundreds of miles of the Gulf of Mexico Coast of the United States, with its thousands of bays and estuaries and lagoons, are returning to the duties and the pleasures of other days, some of them to remain on the water, in their work and play on Lake Pontchartrain, and others—the men of course—to civilian life which will take them inland from the waters they love the more for their wartime work upon them.

The first of the boats to come back was Wendy, the old reliable of the S. Y. C. fleet, working all week, and in every race or regatta held at West End on Saturday's. Never a big winner in any of the sports in which his boat took part, C. A. Spurl, owner of Wendy, is noted from Pensacola to Galveston for his sportsmanship. No effort was too great for him to make in behalf of the motor boat game at the club, and no race was too short nor too long nor too difficult for Wendy to be one of the entries. Naturally, then, this boat was one of the first to go into Government service, and not sold at that, merely loaned, so that she might come back to her old

sacola and even as far over as Tampa, almost on the other edge of the Gulf.

When these boats were taken over by the Government, it was understood that they were either sold outright, or rented, to be returned in the same condition in which they were received by the Government. Those which are to be returned to their civilian owners, and have come back from their war work, are moored at the Algiers naval station, awaiting repairs and such alterations as may be necessary before their return to the waterways of peace. Among them are Elmasada, a big, roomy, and seaworthy wooden-hull pleasure cruiser, which was sold to the Government by

C. B. Fox, vice-commodore, S. Y. C.;

Shirin, the big steam yacht which Isaac

T. Rhea converted from steam to

gasoline power and then sold to

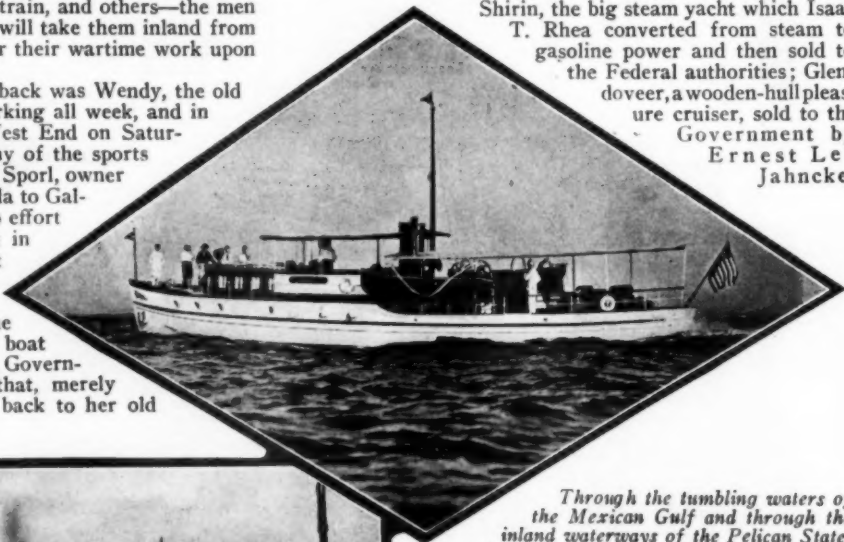
the Federal authorities; Glendoveer, a wooden-hull pleas-

ure cruiser, sold to the

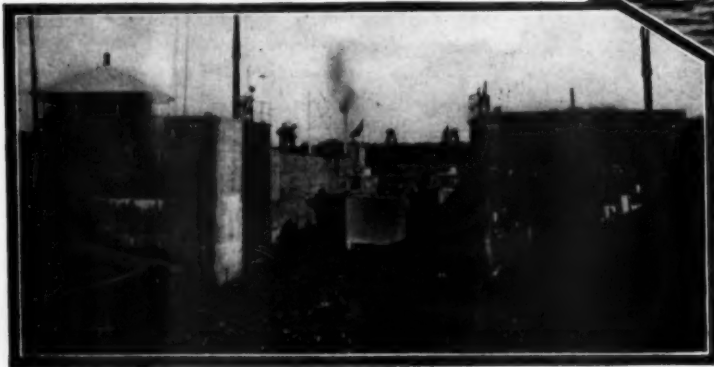
Government by

Ernest Lee

Jahncke,



Through the tumbling waters of the Mexican Gulf and through the inland waterways of the Pelican State, choked with water lilies, connected by canals and locks, the fighting fleet of the Southern Yacht Club wended its way day and night for almost two years



place in the S. Y. C. fleet. A place of much honor.

Wendy went into Government service in July, 1917, and ever since has been keeping a watchful eye on shipping at the mouth of Mobile Bay, under command of Ensign Richard Olney Stewart, of Oklahoma City. Her line of duty was unostentatious, but vitally important, and was of the same class as that performed by other boats of the S. Y. C. fleet at other points along the Gulf Coast. Too small—for she is only 65 feet long—to go across and strafe the U-boat on the other side, Wendy kept a close lookout on all ships entering and leaving Mobile harbor, and put port guards on them when necessary. Her *nom de guerre* was Scout Patrol No. 234. Similar duty was performed by the other seven boats of this fleet from the Southern Yacht Club at Galveston, Port Eads, the Rigolets, Mississippi Sound, Pen-

former commodore of the Southern Yacht Club, and Quicksilver, a steel-hulled patrol cruiser, slightly smaller than Glendoveer, and which Mr. Jahncke built at his Madisonville (La.) yards shortly before Uncle Sam got

into the war, and thereafter sold to the Government.

Corinthia, a steel-hull boat, one of the finest in the South, owned by Vice-Commodore Fox, was chartered to the Government. Josephine, a large pleasure cruiser, formerly owned by Theodore Grunewald, was sold outright, and apparently has left southern waters. Hart Newman's Lady Doris, a beautiful pleasure cruiser, is another which will be returned, having been loaned to the Government at a fixed rental.

Corinthia, Elmasada, and Shirin are at the naval station, while Wendy has come back to the Southern Yacht Club. The others are straggling in with their crews as they finish their tricks at whatever port, or along whatever bit of coast they may have been assigned.

Patrol duty for these boats, particularly to the west of

New Orleans, between the Mississippi River and the Sabine River of Texas, has been extremely arduous. In this area lies some 12,000 square miles of swamp, cut by myriad waterways, emptying into such bays as Vermilion, Atchafalaya, Timbalier, and Barataria, all of which had to be watched and watched closely. Our next door neighbor to the south was extremely friendly with the Berlin government and close watch had to be kept on all strange boats and men coming across the gulf. Only men who knew these waters, men who knew every hiding place along the coast of that 12,000 square miles of swamp could have stood watch over it. Some of these waterways lead for as much as 300 miles back through the swamps and the lowlands into the heart of Louisiana, and virtually all of them connect with canals or with railroads running directly through the interior of the country to the centers of population. While agents of the Department of Justice hunted out draft dodgers and objectors among the villages of these acres of marsh, the motor boat patrols prevented such characters from escaping by sea, and prevented alien enemies from entering the country through this great interlocking system of inland waterways.

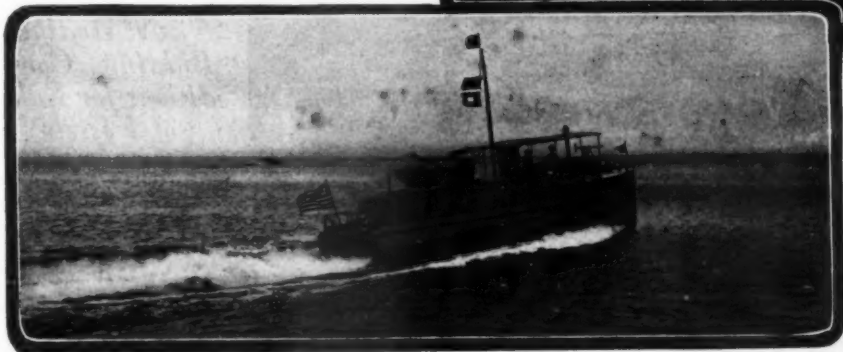
Just what were the results of their vigil, how many boats they took in tow, and how many men they brought to book, these members of the Southern Yacht Club will not tell, and their sturdy boats cannot talk. Possibly it will be written some day, and when it is, it will be a book well worth reading. Five of the boats from New Orleans are known to have been working on this stretch of coast, and one or two were helping at Galveston and around the mouth of the Sabine River. Probably there were boats from Mobile and Pensacola, and Tampa, and Galveston there, also, for, like homing gulls, the little gray fellows are returning to all the ports along the rim of the gulf, and most of them found plenty to do in the waters near home, without time for longing for the work of the other side.

Some of the posts of these motor guards of the gulf coast have been at historic spots, and in their way they added not a little to the glamour which surrounded old Fort Bienville, for instance, where it keeps lonely and solitary ward over the entrance

past the larger vessels in the Florida Strait or the Yucatan Channel, there should be no interference with the men who were harvesting the sea's crop of fish and oysters and shrimp to help feed a nation at war. Much of this, of course, was hard work, but through it all ran a golden thread of romance and adventure, a line which followed might lead to nothing today and to everything tomorrow, so that everyone who went out on this self-imposed task for the Federal Government, deep down in his heart, was sorry to see it end.

Besides these men and boats from New Orleans, there was still another class of men and of craft which helped in gulf waters, but for them it was all in the day's work. Part of their duty it was to them, and they did it, just as, today, they are still on their regular jobs, to which the Government patrol work was just an added task. They were the men and the boats of the Louisiana Department of Conservation, that bureau of the state Government which saves to Louisiana every year millions of dollars in the products of its natural resources by safeguarding everything, from the oyster beds to the oil fields.

With their fleet of twelve motor boats, ranging from the \$25,000 cruiser Alexandria down to the little Coot and Teal, they extended their patrols through the nearly 5,000 miles of navigable inland waterways in Louisiana, backing up the work the New Orleans motor boats were doing around the mouths



Guns are being dismantled, war paint is being scraped from hulls and superstructures and owners are tuning up motors and taking preliminary spins to put their craft in shape for the coming regattas

to Lake Borgne, and where, the superstitious negroes say, the spirit of Jean Baptiste LeMoyne de Bienville, the French adventurer who founded New Orleans, meets his old comrades on the night of every Shrove Tuesday. They also patrolled in front of the entrance to Lake Pontchartrain from Mississippi Sound, where there is still another old fort, occupied in the time when the flags of France and of Spain struggled for supremacy in the New World.

Whether they encountered any of these spirits of the dead centuries none of the logs of the motor cruisers tell, but they did keep the moving and restless modern spirits from Latin-America from bringing anti-American doctrines or messages or bombs into the United States—which was vastly more important to Uncle Sam and Miss Columbia.

Likewise they watched over the commerce of the inshore waters of the gulf and stood guard over the fishing fleets from the great sea-food packing plants of the Mississippi towns of Biloxi and Gulfport and Bay St. Louis, so that, should any enemy invade the gulf, should any U-boat get

of the streams and on the open gulf. The lives of these agents of the conservation department and their armed boats are always battles of wits and often of force as well, with the oyster pirates and the poachers, with out-of-season game hunters, and with other rogues in the great swamps of Louisiana's No-Man's-Land. Naturally, they fell into the added task of helping Uncle Sam just as easily as the proverbial duck goes into the water. But there was no war paint for them; merely a constant look-out for other kinds of law-breakers than those they were and are accustomed to handling. Just what they accomplished, is likewise a closed book, but they must have been busy for few of the twelve motor boats, and few of the many agents of the department were seen about their base in New Orleans during the period of our participation in the war.

And the return of the S. Y. C. boats means a great deal to the Southern Yacht Club and the social life of New Orleans, as well as to the motor boat sports and work of the

(Continued on page 58)

Great Performance of Bedouin

Bedouin, equipped with the first Delaware marine motor ever built, a model DF-IV, four-cylinder, four-cycle, 40 h.p., competed in the Yachtsman's Club Invitation Race from Essington, Pa., to Cape May, on June 7, and came in third. The craft made the distance in 11 hours, 42 minutes and 34 seconds, including 1 hour and 15 minutes held up by a very heavy fog. The race was run under the auspices of the American Power Boat Association, and apart from the bad weather encountered, was a great success.

The engine was run on the testing block four days before the race took place in order to see whether it could be broken up by being run wide open indefinitely. It was then taken completely down, carried piece-meal to Bedouin, and set up. Bedouin was painted and launched two days before the race, taken under her own power to Essington and rated one day before the race. This seems to be a pretty fair substantiation of the claim of the Delaware Marine Motor Company that the engine is accessible all over.

On the return trip George R. Foulke, Jr., sales manager of the company, in order to see how quickly it could be done under actual working conditions, stopped the engine in the middle of Delaware Bay, with a heavy gale blowing, removed the after crankcase cover plate, inspected the bearings, replaced the cover plate, opened and inspected the water pump, and took off and cleaned out the oil pump, which had picked up a small piece of iron filing which had not been cleaned out of the oil sump, and had the boat under way again in 42 minutes. This seems to be pretty rapid work. Bedouin is about 45 feet long, 10 feet beam, and was equipped with a 24-inch diameter, 26-inch pitch wheel. The r.p.m. of the engine was held down on the trip to 585.

Many New Yachts Building

Many pleasure craft are under construction at the yards of the Consolidated Shipbuilding Corp., Morris Heights, N. Y. One of these boats, a 230-foot steel steam yacht, is a truly handsome craft and destined to be one of America's finest yachts. This boat is being constructed for one of the largest publishers in the country and is already well under way. Repair work is occupying much of the attention of the Consolidated Corporation, there being several score boats of various

Yard and Shop

Notes of Interest to Both Owner and Manufacturer

types on the ways undergoing overhauling, but this has not delayed progress on the building of the new craft, which besides the steam yacht mentioned above, includes:

Two 74-foot motor yachts for prominent yachtsmen are being rushed to completion for this summer's use.

A 45-foot, shallow draft, tunnel stern boat has been recently launched. This boat is to be used for exploration purposes on the Amazon River in South America, and promises to be an exceptional craft for its requirements.

The first of the four 100-foot wooden harbor tugs under construction for the Emergency Fleet Corporation was launched a few weeks ago. The machinery installation in these vessels will be the well-known Seabury steam engines.

Rapid progress is being made on an 86-foot yacht, building for a noted Philadelphian. The lines and general arrangement of this craft leads one to believe that she will be among the foremost in quality and beauty, in boats of her class.



Fleur-De-Lis is used by William Lilly, of New York, as a ferry between the railway station and an island home in the Muskokas. It is a beautiful example of the limousine type, measuring 35 by 7 feet and accommodates seven persons. It is powered with a 6-cylinder Sterling, maintains over 26 m.p.h., and was designed and built by Ditchburn Pleasure Boats, Ltd., Gravenhurst, Muskoka.

The Mine Sweeper Tern has been recently completed, and delivered to the Government. This vessel makes the fifth Sweeper that has been delivered and accepted by the Navy Department in one year and a half.

A 52-foot stock cruiser is about completed, and is truly an exceptional craft. This is one of the standardized boats of the Consolidated Shipbuilding Corporation, and is offered for sale at a moderate price.

Numerous other stock models in smaller craft are now completed and are in their show rooms at Morris Heights, N. Y.

Sterlings Make Good in Heavy Duty

Data recently compiled by the Sterling Engine Company on the operation of Model F motors has been issued in a handsomely illustrated folder to dem-

onstrate the good service of the company's heavy-duty motors. The boats pictured show typical installations in commercial craft, and include a Revillon Freres trading schooner operating on Hudson Bay, which has a single six-cylinder, Model F, 35-85 h.p. motor, maintaining a speed of 6½ knots with the vessel loaded to capacity; a work boat for retrieving torpedoes used by the E. W. Bliss Co., of Sag Harbor; a messenger and cargo boat used by Lens, Furness, Withy & Co., at Halifax; the auxiliary schooner Andiamo, designed and used by the well-known naval architect Wm. H. Hand, Jr., of New Bedford, Mass.; the auxiliary schooner Fontinalis, designed by Prof. George Owen for Dr. C. G. Jennings, of Detroit; life boats used by the Government Coast Guard Service; a fee collecting boat used by the Cape Cod Canal Company; a quarantine boat used by the Government at Pensacola; freight boats used by the Texas Company at Tampico, Mexico; a boat used in lifting hydroaeroplanes from the water at Langley, Va., the Coast Guard Cutter Sentinel; a 71-foot schooner yacht with an auxiliary owned by E. M. Statler, the well-known hotel man; one of the patrol boats of the New York State Conservation Commission; a tug used by the Coast Guard Service; a ship chandlery boat used in Baltimore

harbor; a tourist carrier on Lake Chelan, Washington, with a capacity of sixty-four passengers; and Finback, a 136-foot over-all ketch owned by C. H. W. Foster, of Boston.

Navy Modifies Bidding Conditions for Sale of Vessels

The Paymaster General of the Navy has succeeded in securing several important modifications in the concessions governing the sale of vessels which were

purchased by the Navy for war purposes and which are now being sold as no longer required. These conditions were imposed by law with the proviso, however, that they could be waived by the President in special cases. The President has now at the request of the Navy Department, authorized modification of these conditions in such a way as to bring the method of sale more in accord with the recent acts relative to the sale of surplus war material.

The first of the new conditions is that bids will be received on the first opening for any amount regardless of the appraised value, the Department reserving the right, however, to reject any or all bids. This is designed to avoid the expense of more than one sale and to promote competition. It is expected that this change will result in the sale of some vessels for slightly less than the appraised value to avoid

expense of further upkeep. It will also give the Navy an idea of what buyers consider the sale value of the vessel to be, and give a basis for possible change in the appraised values. It is not the intention of the Navy, however, to sell these vessels at unfairly low prices.

The second and more important change is with respect to the deposit and guaranty bond to accompany the bids. Bidders were formerly required to deposit the total amount of their offer in cash or certified check, or 10 per cent. of their offer in cash or check with a bond for the entire amount to guarantee payment of the remaining 90 per cent. in case their bid was accepted. It is felt that those requirements were very discouraging to bidders either because of the high premiums which they were required to pay in giving a bond for the entire amount of their bid, or the interest lost by the deposit of certified checks for the same. The new requirement provides merely for security of not less than 10 per cent. of the bid in one of the following forms:

Cash, certified check, Liberty bonds, guaranty bond, (surety or personal).

It is provided that the above are forfeited in case successful bidders do not complete payments on their bid within thirty days. Cash or certified checks, of course, apply on the purchase price. Liberty or guaranty bonds are accepted as security only to guarantee the payment of the entire amount of the successful bid within the time limit.

Although some commercial vessels are being sold, the larger part of vessels now on sale are yachts and motor boats designed for pleasure purposes. The yachting fraternity has fully demonstrated its worth to the country in time of emergency. The Navy recognizes the military value of this activity, and particularly desires, in connection with the sale of these boats, to interest those who have not previously taken up this form of recreation.

A number of vessels have already been sold at prices above the appraised value. Following is a list of those now on schedule and others will shortly follow. The Bureau of Supplies and Accounts, Navy Department, Washington, D. C., has supervision over these sales and is prepared to furnish information to interested parties. All sales are by sealed bids.

Bids to be opened June 30, will be for the freight boat Vester, 96 feet; the fish boats McKeever Bros., 136 feet; S. W. McKeever, 136 feet; J. F. Belows, 162 feet; M. M. Davis, 130 feet; Peter C. Struven, 152 feet; the motor boats Sea Hawk, 62 feet; Grey Fox, 48 feet; Pope Mark, 51 feet; Traveler 50 feet; Zig Zag, 44 feet; Kanised, 90 feet; Yo Ho, 43 feet; Grey Hound, 39 feet; Cossack, 64 feet; Edith M III, 59 feet; Shirin, 92 feet; Nightingale, 45 feet; the steam yachts, Vega, 161 feet; Thetis, 127 feet; and the steamship Theodore Roosevelt, 287 feet.

Why Don't You?

This is the sort of letters motor boatmen are sending their Congressmen:

"Dear Sir:

"I am enclosing herewith a clipping from MoToR BOATING magazine stating why the tax on motor boats should be removed and also an additional reason of my own from personal observation as an owner and builder of motor boats.

"I feel convinced in saying that at least seventy-five per cent. of the boat builders of this country depend upon the owners of pleasure motor boats for a living. The pleasure motor boat owners have kept an industry alive that would have gone out of business long ago. When our country went into war the first call was for boat builders. The boat building profession cannot be learned in a short while, so it took away the skilled men from the yards of motor boats kept in existence by the pleasure boat owners. It also took away hundreds of small boats that were offered

"When the country sent out its S.O.S. for 10,000 boat builders it did not fall on deaf ears, it found them ready and prepared to train even a million more if necessary. Who were the men who kept these men fit to do this? The pleasure boat owner, and ninety per cent. are not able to stand this additional expense for the pleasure they derive from same.

"This is my own reason why the tax on motor boats should be removed.

"Most respectfully,

"H. MORVAN,
"New Orleans, La."

A Convention of Champions

It isn't often that a convention of champions occurs, every man in the convention a champion of some sort, but that is what really happened recently in Toledo, O., when the Champion salesmen convened, coming from all parts of the United States and Canada to attend the semi-annual meeting of the knights of the grip of the Champion Spark Plug Company. There were 125 salesmen in the gathering, the jobbers' salesmen assembling three days before the others for a preliminary session. Later all of the travelling representatives, including those in charge of the thirty-five advertising cars that are driving cross country for demonstration purposes also came in to attend the convention and finally the others. F. B. Caswell, the sales manager of the company, arranged the program.

Owing to the war and the fact that many of its salesmen were in the service, the company did not hold its regular convention in January. But in the last few months, twenty-eight men have returned to the sales force, so that the convention brought together many members of the sales organization who had not seen each other for more than two years.

Masters Agency in Finland

The Masters Mfg. Co. of Boston, Mass., which is continuing the business of Irvin W. Masters in manufacturing Masters boatmeters, announces the establishing of an agency in Helsingfors, Finland. This agency is the A/B Maritim O/Y. The managing director of this company is B. Relander, who has recently spent several weeks in the United States purchasing material for shipment to Finland.

Mr. Relander states that conditions have been very adverse in Finland for the last three or four years, but that now yachting and motor boating are on the boom and that a number of very fine motor boats are being built, among which he mentions boats built after the design of Wm. H. Hand.

The Maritim Company will have the exclusive sales right of the Masters boatmeters in Finland and they are in position to supply these instruments promptly to the yachtsmen.

69TH CONGRESS,
1st Session.

S. J. RES. 24.

IN THE SENATE OF THE UNITED STATES.

May 28, 1919.

Mr. KEOX introduced the following joint resolution; which was read twice and referred to the Committee on Finance.

JOINT RESOLUTION

To repeal sections 630, 900, and 904 of the act entitled "An act to provide revenue, and for other purposes," approved February 24, 1919.

- 1 Resolved by the Senate and House of Representatives
- 2 of the United States of America in Congress assembled,
- 3 That sections 630, 900, and 904 of the act entitled "An act
- 4 to provide revenue, and for other purposes," approved Feb-
- 5 ruary 24, 1919, be, and the same are hereby, repealed.

Resolution introduced by Senator King to repeal the war tax on luxuries. Section 900 referred to includes the 10 per cent tax on new motor boats. Everyone interested in boating should write their Congressman urging support

to the Government by the owners themselves. These skilled men went into the business on a large scale and drilled thousands of other men, and the results are that the country is advancing rapidly as a boat building nation.

"The Government now says that the pleasure motor boats are a luxury and should be 'soaked' and 'soaked' they were. The final results will be that thousands of motor boats will go out of commission and eventually into ruin, thereby crippling an industry that so readily answered the country in time of need. The men will seek other professions and the financial receipts that the Government will receive will be more than offset by the harm it will do. The country needs boats, also boat builders, keep them alive by removing the tax.

Hall Making Steering Wheels

W. S. Hall, of W. S. Hall & Co., of Rochester, N. Y., has been released from the Government service and is now actively in charge of the activities of his firm. This company has for some time manufactured the Reliance-Rochester marine steering controls favorably known both in the trade and by motor boatmen, but it is now specializing in unit controls, both single and twin, designed to centralize the entire control of the boat. It is also making spoke steering wheels for yachts and tug and steamboat steering wheels with drum and frame.

The yacht steering wheels are handsomely made with in-laid mahogany cheeks and brass hubs and can be supplied in all mahogany or mahogany rims and locust spokes, finished with three coats of spar varnish. They are made in the following sizes: 20- 24- 28- 30- 32- 34- 36- 42- and 48-inch diameter. Larger sizes can be made to order.

New Matthews Catalog

With a striking night scene as the illustration for the cover, a catalog has been issued by the Matthews Engineering Co. of Sandusky, Ohio, describing its Lighting Plants. The Company has invited frank criticism of the catalog, but it appears to be so complete and well arranged that we modestly decline to offer suggestions.

It not only includes a mass of information about the plants with full details as to their construction, operation, maintenance, but it illustrates a number and includes a bunch of wonderful testimonials from persons who have been using these plants for some years. It also includes a page of information as to the uses these plants have been put to during the war.

Self-Cleaning Spark Plug

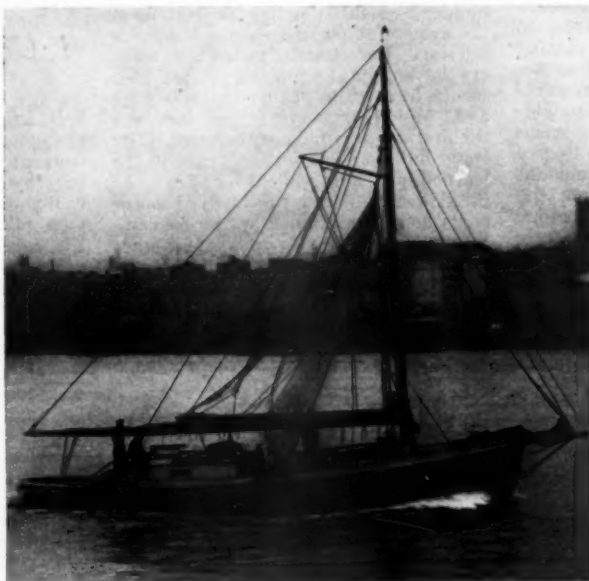
A Toledo, Ohio, man has invented a self-cleaning spark plug, one that really works and is practical and has reached the point in its development where the manufacturer will back it with a most liberal guaranty. Some of the feats accomplished by this spark plug read like a dime novel, according to those who gave out the information, but they claim to have well authenticated facts to substantiate each story.

Any one who has had anything to do with spark plugs knows that most trouble is caused by short circuit on the inside of the plug. Soot and oil collect on the porcelain insulator and inner walls of the plug and the intense heat of the explosion serves to carbonize this deposit. Gradually this deposit builds up on the walls, insulator and spark points and forms a surface on which the oil gathers in a film which becomes a perfect conductor to carry the current to

the outer wall and cylinder heads in a "short circuit". Many devices have been invented with which to clean spark plugs, but it remained for this Toledo inventor, Mr. Hubert A. Myers, to design and produce a spark plug which effectually cleans itself.

The plug is made with a special size inner chamber, in which a number of little porcelain pebbles are placed. With each impulse of the engine, either compression or explosion, these little pebbles are forced up and down in the inner chamber with the result that their rough surface completely cuts away the soot, oil, and carbon and keeps the insulator and inside walls entirely clean of any deposit. This, of course, insures a perfect operating spark plug so long as the necessary charge of current comes from magneto or battery in the usual way.

The practicability and efficiency of the Myers self-cleaning spark plug have been fully proven by many thorough tests. One of these plugs was in constant use on a car for 78,000 miles—more than three times the distance around the world—and the Myers self-cleaning plug worked perfectly all that time. Not once was it necessary to remove it for repairs or cleaning. Other tests have been made on passenger cars, service cars, heavy-service trucks and even on cement mixer engines and all with the same perfect results. One test was made on a truck on which it had previously been necessary to change spark plugs every day for cleaning. A Myers self-cleaning spark plug was installed and has now been in use four months without need of change for cleaning or repair. A remarkable record.



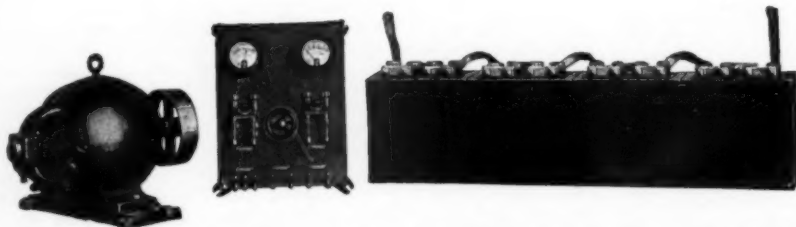
Ebenezer powered with a four-cylinder, heavy-duty Sterling (re-built) purchased from Bruns, Kimball & Co., has been used continuously since 1915 and the owners have not purchased \$40 worth of repairs

National Changes Name to Bluebird

The National Tool & Mfg. Company has changed its name to the Bluebird Mfg. Company, effective June 1. Heretofore, this company, located at 2536 University St., St. Louis, has been engaged in the manufacture of tools, gauges, fixtures, motion picture machines, typewriting machines, specialties, and ordnance material. Since the closing of the war the company has developed a line of electrical household appliances, including certain appliances suitable for use on motor boats, and in the future is to devote itself exclusively to these products. The line of goods is marketed under the trade name of Bluebird and the change in the corporate title was effected to more closely identify the company with its product.

Leopold Makes a Change

Joseph Leopold has resigned as sales manager of Jones - Motrola, Inc., and is now associated as sales manager with the Trego Motors Corporation. This company was one of the first builders of the Liberty Engine.



Lighting outfit now manufactured by the A-C Electrical Mfg. Co., who have purchased the motor boat and country home lighting departments of the Dayton Electrical Mfg. Co.

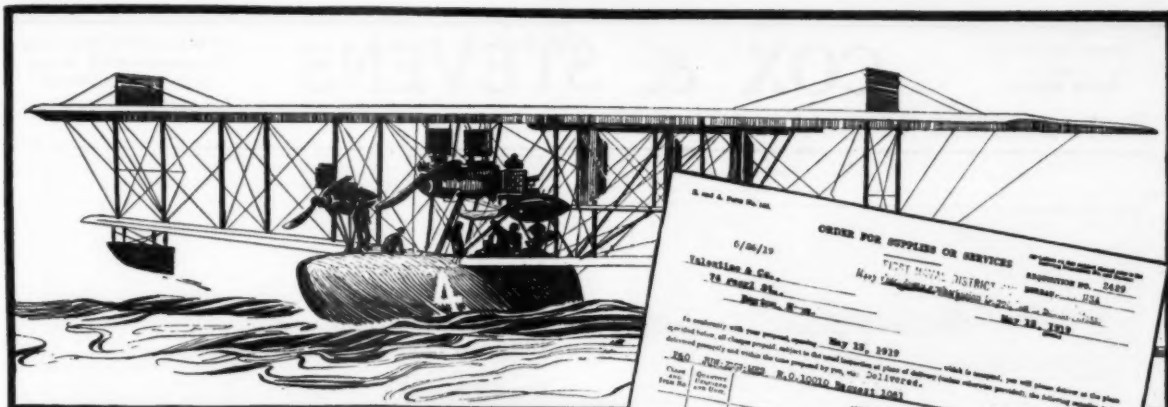


Photo © Press Pub. Co.

The NC-4 is Varnished with Valspar

ONCE more it has been conclusively demonstrated, in the most spectacular flight in history, that Valspar is the supreme varnish.

The Navy Department varnished the NC-4 with Valspar because of its absolute *water-proofness*, its unequalled *toughness*, and because it possesses the marvelous *elasticity* required to stand the terrific vibration of a seaplane in flight.

These same remarkable qualities make Valspar the greatest varnish in the world for use on boats of all kinds. Take a tip from the Navy and use Valspar whenever you varnish anything.

Valentine Marine Products

- | | |
|--|-----------------------------|
| Valspar Varnish | Yacht White |
| Valspar Enamels, made in 12 colors and Black and White | Yacht Black |
| Val-Enamel | Val Primer—Wood |
| Valspar Aluminum Paint | Val Primer—Metal |
| Val Filler—Metal | Valspar Bronze Bottom Paint |

Send for our little handbook, "How to Use Valspar on Boats." It is full of useful tips on varnishing.



VALENTINE & COMPANY
456 Fourth Avenue, New York

Largest Manufacturers of High-grade Varnishes in the World

ESTABLISHED 1888
New York Chicago VALENTINES Toronto London
Boston Amsterdam
(Trade Mark)

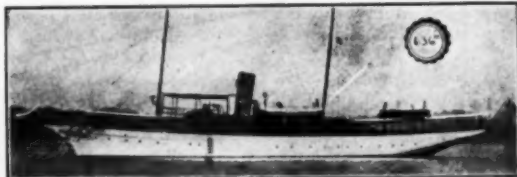
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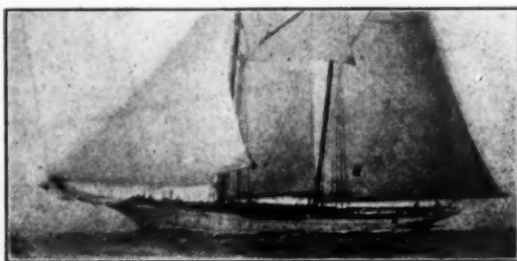
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We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request.



No. 636—For Sale or Charter—Modern 150 ft. steel steam yacht; most desirable of type and size available. Excellent accommodation; good speed. First class condition. Cox & Stevens, 15 William Street, New York.



No. 148—For Sale—Steel, flush deck, steam auxiliary schooner yacht, 130 ft. overall, 110 ft. waterline, 36 ft. beam, 15.6 ft. draft. Speed under power 9 knots; compound engine; electric lights; all conveniences. Extremely able craft; heavily constructed. Cox & Stevens, 15 William St., New York.



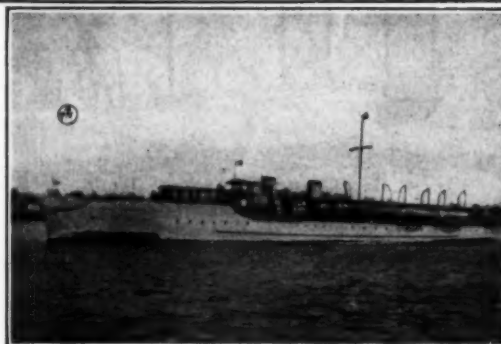
No. 3529—For Sale—Fast bridge deck cruiser; 60 x 10.6 x 4 ft. Built 1916. Speed up to 18 miles; 8-cylinder 215 h.p. Van Blerck motor. Dining saloon containing pullman berth and transom forward; double stateroom aft. Cox & Stevens, 15 William Street, New York.



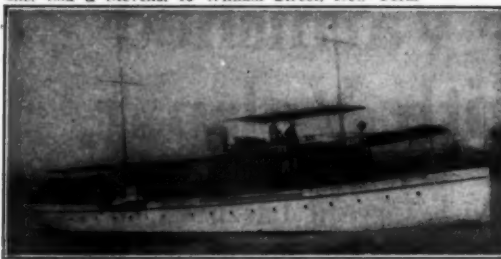
No. 639—For Sale or Charter—Steel, twin screw power yacht; 111 x 21 x 4 ft. Speed 12-14 miles; Standard reversible motor. Exceptional accommodation; five double staterooms, two bathrooms, large living room, etc. Price Low. Cox & Stevens, 15 William Street, New York.



No. 579—For Sale or Charter—Attractive bridge deck cruiser; 60 x 11.6 x 3.9 ft. Speed up to 13 miles; 32/40 H.P. Speedway motor. Large saloon, double stateroom, toilet room, etc. Prices and further particulars from Cox & Stevens, 15 William St., New York.



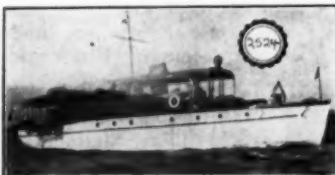
No. 978—For Sale—High speed, triple screw, oil burning steam yacht; 165 x 16 x 6 ft. Speed up to 30 miles. Deck dining saloon, four staterooms, etc. Low figure accepted for immediate sale. Cox & Stevens, 15 William Street, New York.



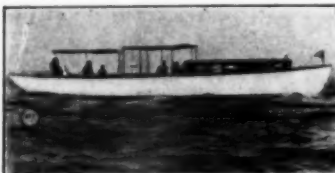
No. 1796—For Sale or Charter—Very roomy, twin screw cruising power yacht, 99 x 17 x 4 ft. Speed 13 to 15 miles; Standard motors. Large dining saloon, six staterooms, three bathrooms, all conveniences. Cox & Stevens, 15 William St., New York.



No. 154—For Sale—Modern 130 ft., flush deck steam yacht. Speed 14 knots; triple expansion engine. Dining saloon and smoking room on deck, 4 staterooms, 2 baths, three toilets, etc. Excellent condition. Price low. Cox & Stevens, 15 William St., New York.



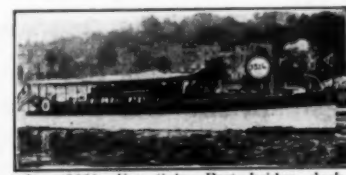
No. 2524—For Sale—Cruising power yacht; 65 x 14 x 4.7 ft. Speed up to 14 miles; 6 cyl. 80 H.P. Winton motor new 1914. Two double staterooms, saloon, toilet room, etc. Price attractive. Cox & Stevens, 15 William St., New York.



No. 627—For Sale—Attractive Lawley Built Day Boat; 53.5 x 10.3 x 3 ft. Speed 11 miles; 32/37 H.P. Standard motor. Best construction. Sleep 4 comfortably. Large cockpit. Low price. Cox & Stevens, 15 William St., New York.



No. 3427—For Sale at Low Figure—Fast, roomy, twin screw cruising power yacht; 74 x 14 x 3.9 ft. New 1916; Lawley built. Speed up to 16 miles; two 6 cyl. "Speedway" motors. Large saloon, three staterooms, shower bath, etc. Cox & Stevens, 15 William Street, New York.



No. 3326—For Sale—Fast bridge deck cruiser; 55 x 8.9 x 3 ft. Speed up to 23 miles; 8 cyl. 200 H.P. Speedway motor. Two berths in cabin, toilet room, large cockpit, etc. Price attractive. Cox & Stevens, 15 William St., New York.



No. 3360—For Sale—Fast bridge deck cruiser; 45 x 10.6 x 3.6 ft. New 1917. Speed 18 miles; 125 H.P. 6 cyl. Sterling motor. Double stateroom, saloon, galley, toilet room, etc. Price reasonable. Cox & Stevens, 15 William Street, New York.

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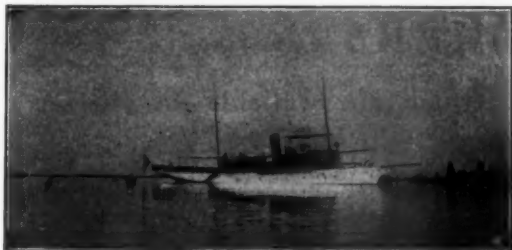
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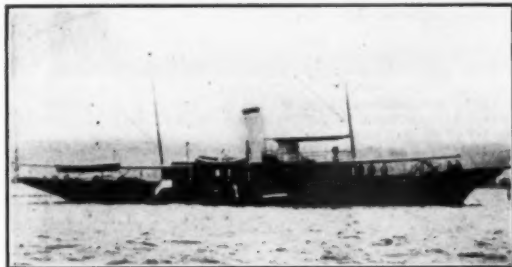
We have a most complete and up-to-date list of power yachts of all sizes, sail, auxiliary and houseboats on file in our office, kept constantly up-to-date by a thorough and comprehensive canvass of the entire yachting field from time to time. We are in a position to submit full information on any type of boat upon request. FOR SOUTHERN CRUISING this winter we offer a number of very desirable POWER HOUSE BOATS and POWER YACHTS which are specially adapted for FLORIDA waters.



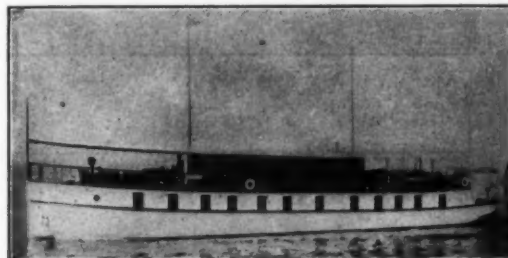
No. 693—For Charter—90 foot overall twin screw steam yacht, 16 feet beam. Extremely attractive craft. Bathroom, double stateroom, large cabin with four comfortable berths; sleeping accommodations for six in owner's party; dining room in deck-house. Gielow & Orr, 52 Broadway, New York City.



No. 5880—For Sale—Most commodious 107 foot cruising houseboat. Built 1917. Luxuriously furnished. Two double and four single staterooms. Three bathrooms. Hot water heated. New electric plant. Now in commission. Gielow & Orr, 52 Broadway, New York City.



No. 303—For Sale—Oil burning 152 foot steel steam yacht, built by Lawley. Deck dining room and social hall. Four staterooms, two bathrooms. Very comfortable yacht. Gielow & Orr, 52 Broadway, New York City.



No. 5006—For Charter—Desirable twin screw 100 foot cruising houseboat. Speed 12 miles. Deck dining room and lounging room. Seven staterooms, three bathrooms. Now in commission. Gielow & Orr, 52 Broadway, New York City.



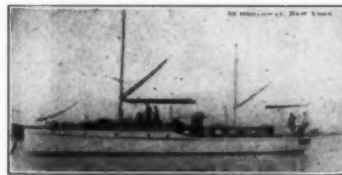
No. 5403—For Charter—Desirable 51 foot houseboat, Standard Motor. Large deck space. Two double and two single staterooms. Electric lights. Accommodations for seven persons. Gielow & Orr, 52 Broadway, New York City.



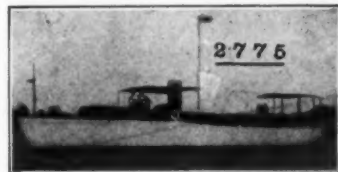
No. 2958—For Sale—Twin screw 120 foot steam yacht. Speed up to 24 miles. Deck dining room. Built by Seabury. Suitable for ferry or racing yacht tender. Gielow & Orr, 52 Broadway, New York City.



No. 4527—For Sale—Most desirable 40 foot cruiser. Sterling engine; new electric starter. Double stateroom; sleeping accommodations 5 persons. Now in full commission. Inspectable near New York. Price attractive. Gielow & Orr, 52 Broadway, New York City.



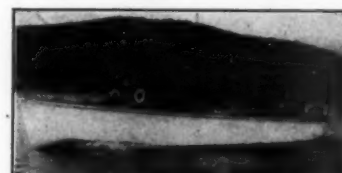
No. 4606—For Sale—Very able 64 foot cruiser, 18 ft. 6 in. beam, 4 ft. draft, 6 cyl. Heavy Duty motor new last year. Speed 10 knots. One double one single stateroom opposite main saloon. Accommodate five persons. Boat heavily built, especially for offshore cruising. Price reasonable. Gielow & Orr, 52 Broadway, New York City.



No. 2775—For Sale—and Charter—60 ft. Cruising Power yacht. One double stateroom and bathroom. Saloon containing pullman berth and transom. Speed 11 1/2 miles. Gielow & Orr, 52 Broadway, New York City.



No. 5850—For Sale—Modern 50 foot Express Hand cruiser, speed 20 miles, built 1916. 8 cylinder Van Blerck motor. Sleeping accommodations 4 persons. Completely equipped, inspectable near New York. Gielow & Orr, 52 Broadway, New York City.



No. 3307—For Sale—Desirable 59 foot cruising power yacht. Standard engine. Double stateroom. Good sea boat, inspectable New York, price attractive. Gielow & Orr, 52 Broadway, New York City.



No. 5195—For Sale—Very attractive 65 foot motor yacht. Speed 12 miles. Two double staterooms. Ready to go in commission; excellent condition. Price attractive. Gielow & Orr, 52 Broadway, New York City.



No. 6226—For Sale—51 foot hand express Cruiser. Built 1917 Van Blerck Motor. Speed 20 miles. Able sea boat. Price attractive. Gielow & Orr, 52 Broadway, New York City.

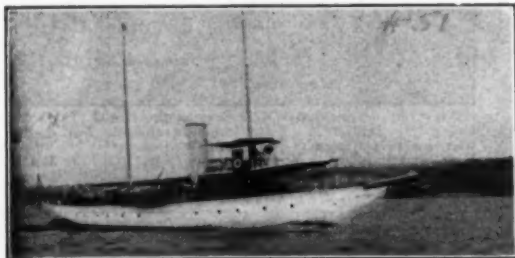
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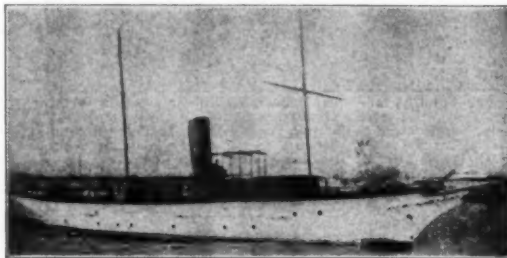
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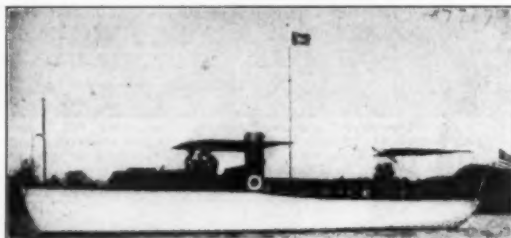
Offer for sale the following yachts, some of which are available for charter



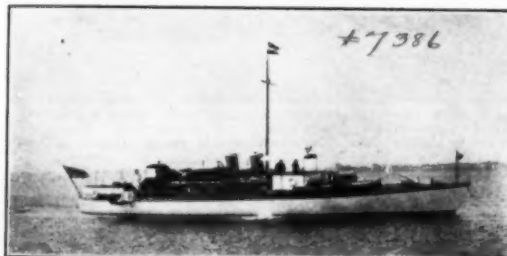
No. 51—For Sale—Price Attractive—Steam yacht. 115 ft. x 95 ft. x 15 ft. 6 in. x 5 ft. 5 in. draft. Built 1903. Triple Expansion Engines, Seabury Boiler, new 1913. 4 staterooms and two saloons.



No. 7987—Sale—Charter—106 ft. cruising motor yacht; speed 13 knots; 4 staterooms, bathroom, main saloon, deck dining saloon, etc. Full equipment.



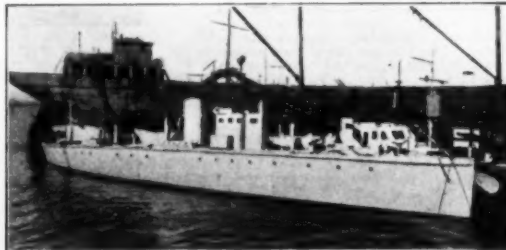
No. 7717—Sale—Charter—Raised Deck Cruiser, 60 ft. x 11 ft. x 3 ft. 6 in. 30 H.P. Speedway motor. Saloon, stateroom, galley, etc.



No. 7386—For Sale—Price attractive. 75 foot motor yacht, 6 cylinder 100 H.P. Standard motor. Good cabin accommodations.



No. 7001—Sale Desirable shoal draft cruiser, 33 ft x 10 ft. 6 in. x 2 ft. 6 in. draft. Built 1917. 25 H.P. Sterling motor. Speed 12 miles.



No. 184—For Sale—Bargain price. Twin screw turbine oil burning patrol boat. Just completed. 113 ft. 6 in. x 16 ft. x 6 ft. 5 in. draft. Make ideal yacht with minor alterations.



No. 7992—For Sale—Modern steel motor yacht, 115' 7" x 17' x 5' 3" draft. 2—100 H.P. Standard motors. Speed 15 miles. Commodious owners' quarters.



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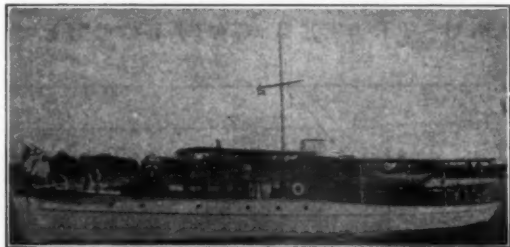
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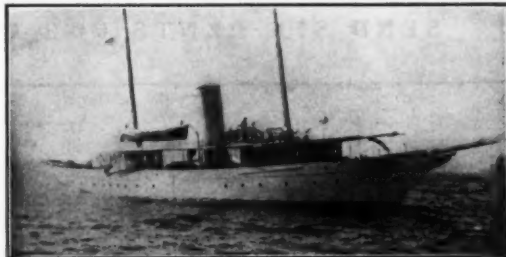
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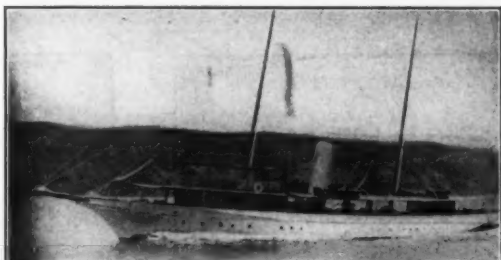
No. 1939—For Sale—Twin screw power yacht, 80 ft. x 14 ft. 4 in. x 4 ft. 6 in. Sterling engine; splendid accommodation. Price reasonable.



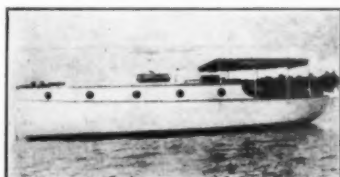
No. 393—For Sale—Steel steam yacht, 139 ft. x 18 ft. 3 in. x 7 ft. 6 in. draft. Has dining saloon, pantry and social hall on deck. Has five staterooms, 2 bathrooms, galley, etc., below. Complete equipment.



No. 2093—For Sale—Power cruiser, 75 ft. x 14 ft. x 4 ft. 6 in. Sterling engine. Deck dining saloon, large main saloon, two state rooms, bathroom, etc.



No. 238—For Sale—Steel steam yacht, 170 ft. x 21 ft. x 8 ft. draft. Large dining saloon, social hall and smoking room on deck; 5 staterooms, 3 bathrooms, etc. Completely equipped.



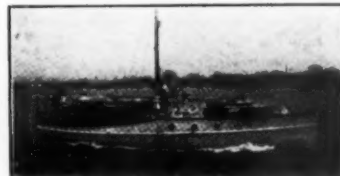
No. 2441—For Sale—Raised deck cruiser, 35 ft. x 10 ft. x 2 ft. 10 in. Four cylinder, 24 H.P. Lamb engine. Sleeps five comfortably. Price reasonable.



No. 1736—For Sale—Twin screw power yacht, 97 ft. x 16 ft. 7 in. x 3 ft. 6 in. 4 staterooms, bath room, deck dining saloon, etc.



No. 2167—For Sale—Power boat, 50 ft. x 11 ft. x 3 ft. 6 in. Fitted with Sterling engine. Large accommodation.



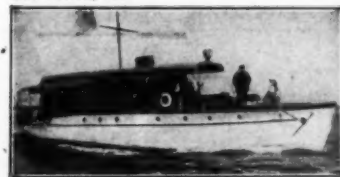
No. 1458—Raised deck cruiser, with bridge, 50 ft. x 11 ft. x 3 ft. 9 in.; fitted with 50 H.P. Ralaco motor; speed, 10 knots; sleeps 4 in Owner's party; Galley, two toilets, etc.



No. 1914—For Sale—Raised deck and cabin house cruiser, 50 ft. x 10 ft. x 4 ft. 50 H.P. motor. Price low.



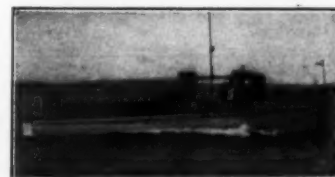
No. 2386—New Patrol type, 54 ft. x 11 ft. 2 in., eight cylinder Van Blerck, speed 17 miles.



No. 1703—For Sale—Bridge deck cruiser, now in commission; 65 ft. x 14 ft. x 4 ft. 6 in.; 100 h.p. 6-cylinder engine; speed 10 knots. Has large saloons with extension berths, 2 double staterooms, galley, etc. Completely found.



No. 1738—Raised Deck Cruiser, 65 ft. x 11 ft., six cylinder motor, good accommodation.



No. 2351—For Sale—35-foot twin screw Express Cruiser. Has 2 staterooms, galley, etc. Two 200 h.p., each 8-cylinder Van Blerck engines; speed 25 to 27 miles.

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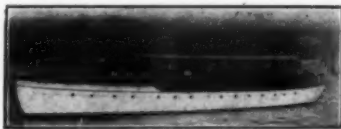
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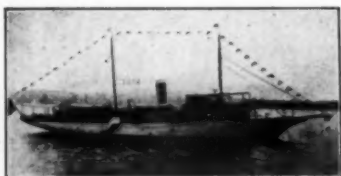
2041—85 foot twin screw power yacht. Two staterooms, saloon, etc. Speed 14 miles.



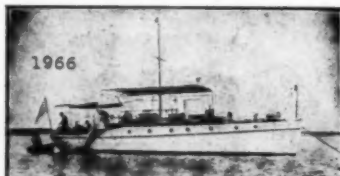
1860—60 foot twin screw express cruiser. Speed up to 23 miles.



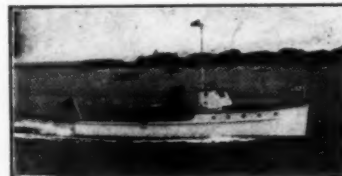
2040—70 foot twin screw power yacht. Three staterooms. Dining saloon, bath, etc. Speed 13-14 miles.



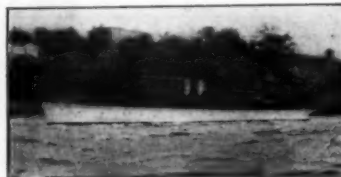
1664—Sale or Charter—110 foot Power Yacht. Five double staterooms, main saloon, dining saloon, Baths, etc. Speed 12-14 miles.



1966—50 foot cruiser. Double stateroom and cabin sleeps four people. Speed 12 miles.



1913—55 foot express cruiser. Stateroom, forward cabin and after cabin, two toilets, etc. Speed 17 miles.



4021—120 foot twin screw express steam yacht. Double stateroom, main saloon, dining saloon, etc. Speed up to 27 miles.



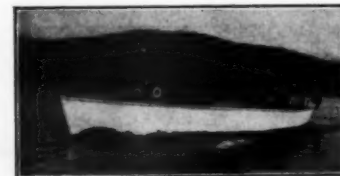
1620—47 foot express V bottom cruiser. Sleeps six people. Speed 18 miles.



1448—62 foot cruiser. Two staterooms, main cabin, etc. Speed 11-12 miles.



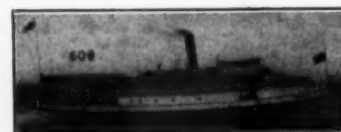
848—75 foot cruiser. Two double staterooms, main saloon, bath, etc. Standard motor. Speed 12 miles.



1445—60 foot cruiser. Double stateroom. Two berths in main cabin. 32-37 H.P. Standard Motor. Speed 10 miles. Price attractive.



1055—46 foot cruiser. Sleeps four in main cabin, two in engine room. Two toilets, etc. Speed 10-11 miles.



609—Passenger and freight steamer 130 feet long; 15 staterooms; cargo capacity about 300 tons. Speed 12 miles.



982—90 foot twin screw power yacht. Three staterooms, main saloon, etc. Speed 14-16 miles.



1125—60 foot cruiser. Two double staterooms, main saloon, bath, etc. Speed 12-13 miles.

Advertising Index will be found on page 100

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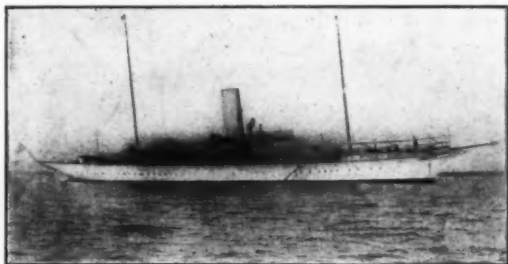
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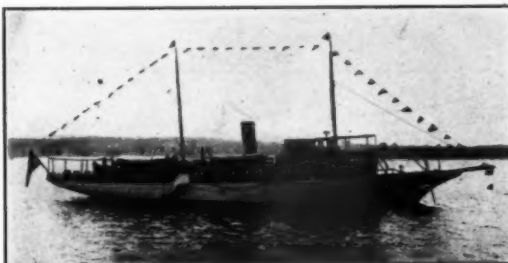
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No. 2622—Twin Screw Power Yacht of best design and build; length 110 ft.; accommodations include 5 staterooms, 2 baths, etc.; good speed.
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No. 4555—65 ft. Gasoline Cruiser; 14 ft. beam; 6 cylinder engine; good speed; excellent accommodations; deliver in commission.
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No. 5221—Cruiser Houseboat for sale or charter; length 65 ft.; good accommodations; 10 miles speed.
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No. 4531—60 ft. Express Cruiser; built 1916; twin screw; Ducsensberg motors; speed 25 knots.
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No. 390—50 ft. Gasoline Cruiser; double stateroom and saloon; cylinder 60 H.P. motor.
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No. 5977—50 ft. Day Boat; Lawley build; New Standard motor; speed 12 miles.
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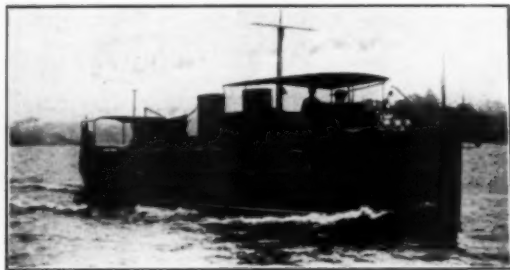
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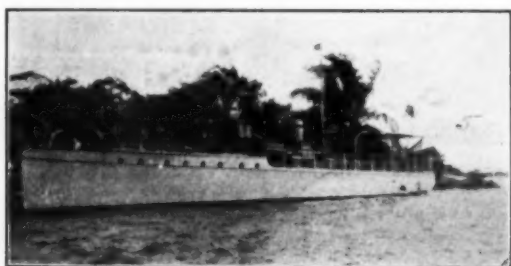
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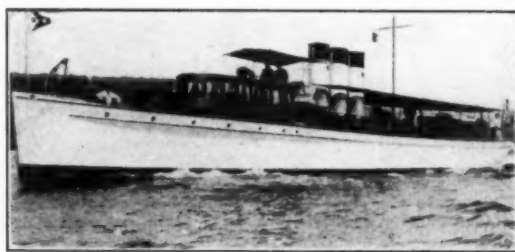
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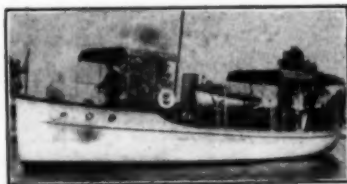
No. 537—For Sale—An exceptionally attractive and seaworthy yacht, 68' in length, speed 14 miles. 2 double, 1 single staterooms. Fresh water shower and complete hot water heating plant. Yacht in commission.



No. 5—For Sale—Twin screw cruiser, 72' in length, speed 15 miles. Excellent condition.



No. 345—For Sale—Express steam yacht, 140' in length. Speed 25 miles. Twin screw. Excellent construction.



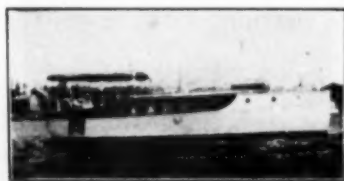
No. 776—For Sale—50' cruiser, speed 11 miles. Sleeps 8 persons.



No. 932—For Sale—50' cruiser. Speed 16 miles. Sleeps 5 persons.



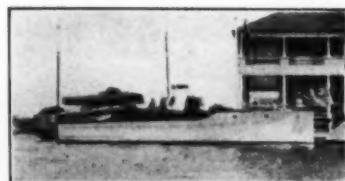
No. 755—For Sale—47' Bridge Deck Cruiser. Excellent condition. Speed 12 miles.



No. 809—For Sale—Very seaworthy. 38' cruiser. Fine condition. Speed 12 miles.



No. 12—For Sale—66' cruiser. Speed 17 miles. 2 double staterooms, 1 bathroom.



No. 844—For Sale—40' Bridge Deck Cruiser. Speed 14 miles. Excellent condition.

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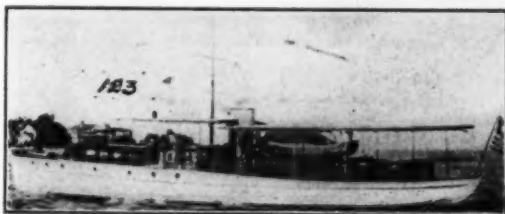
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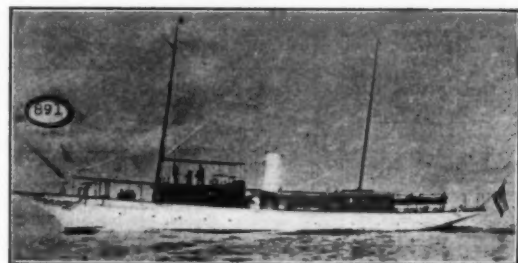
We have a complete list of all Steam and Power Yachts, Auxiliaries and Houseboats which are offered for sale and charter.
Plans, Photographs and full particulars furnished on request.



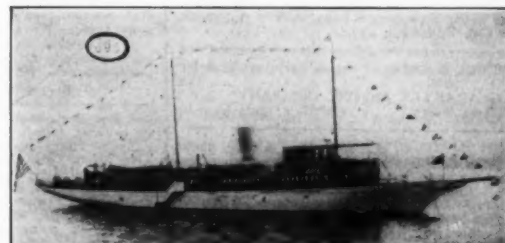
No. 116—For Sale—Twin screw steel steam yacht. 227 ft. x 24 ft. 6 in. x 10 ft. draft. Five single and two double staterooms. Four bathrooms. Two deckhouses containing dining saloon and social hall. Speed up to 22 knots.



No. 123—For Sale—Matthews built twin screw cruiser. 80' x 14' 4" x 4' 6" draft. Two double, one single staterooms, bath and toilet. Speed 11-12 miles. Independent lighting plant. Will accept low price for quick sale.



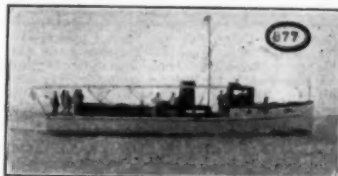
No. 891—For Sale—138 ft. steel steam yacht. 17' 6" beam, 7' 6" draft. Two double, two single staterooms, two baths and toilets. Dining saloon and social hall on deck. Fittings throughout of the very best. New boilers and engine in 1916. In excellent condition throughout.



No. 696—For Sale—102 ft. twin screw steel gasoline yacht. Designed and built by Seabury. 21 ft. beam, 4 ft. draft. Roomy and comfortable. Furnishings and equipment complete. Excellent bargain.



No. 566—For Sale—55 ft. twin screw power yacht. Low price. Speed 12 miles. Full equipment.



No. 877—For Sale—58 ft. Express Cruiser. Herreshoff design, built 1917. Speed up to 27 miles. Twin Van Blerck motors. Boat is beautifully finished and furnished. Equipped in every particular. Sleeps four in owner's quarters.



No. 413—For Sale—85 ft. Twin Screw Cruiser. Seabury built. Speedway motors with independent lighting plant. Will make up to 14 miles. A handsome boat and thoroly modern.



No. 847—For Sale—66 ft. power cruiser. Built 1916 by Lawley. Three staterooms. Excellent condition. Located Great Lakes.



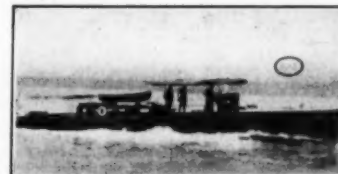
No. 548—For Sale—65 ft. power cruiser. Dining saloon, 2 staterooms, etc. A very comfortable yacht for extensive cruising. Low price.



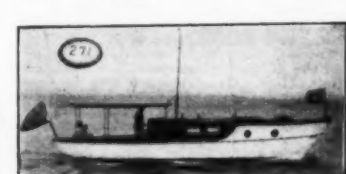
No. 854—For Sale—50 ft. express cruiser. Speed up to eighteen miles. Accommodation 6-8. Excellent condition throughout. Built 1917. Low price.



No. 560—For Sale—75 ft. gasoline cruiser. Built 1915. Sterling engine. An able boat with splendid accommodations. Price very attractive for quick sale. Located Lake Michigan.



No. 454—For Sale—60 ft. Twin Screw Day Cruiser. Built 1916. Van Blerck motors. Cruising speed 18 miles and maximum 20. Motors controlled from bridge. Low price.



No. 271—For Sale—36 ft. raised deck cruiser. Large comfortable cockpit. Sleeping quarters to accommodate six. Sterling motor. Speed up to twelve miles.

THE MOTOR BOATING MARKET PLACE

The rate for "For Sale" and "Want" advertisements is 3 cents per word, minimum 75 cents. If an illustration is used, the charge is as follows, which includes the making of the cut:

Cut one inch deep, one column wide..... \$3
Cut 1½ inches deep, 1½ columns wide..... \$5
Cut 2½ inches deep, three columns wide..... \$15

Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offer of the month. Please mention MoToR BoatinG.



FOR SALE—Motorboat (sea-sled); solid mahogany, 20-ft.; 75 H.P.; Sturtevant engine; 1500 r.p.m.; fully equipped; guaranteed speed 28 miles; excellent condition; can be seen by application Millbank Cottage, Seabright, N. J. Telephone Seabright 87. Particulars apply Russian Volunteer Fleet, 32 Court Street, Brooklyn. Telephone Main 6034. Sale price \$3,500.

USE "SNAPPER" ENGINES for your small boat. They are a big little engine built by The Automatic Machine Co., Bridgeport, Conn.

CANADIANS, Second-hand engine bargains. Send for list.

GUARANTEE MOTOR COMPANY
79 Bay Street, North Hamilton, Ont., Canada

BOSCH MAGNETOS—All types \$15.00 each and up—Coils: Remy-Splittdorf—Delco and other types \$5.00. Low Tension Magnets all models \$5.00 each and up. Presto Tanks \$5.00—Lighting Generators \$9.00. Starters. Carburetors. Switches. Steering Wheels, etc. Auto Motors, both water and air cooled all sizes. Write for late bargain bulletin second-hand Auto material suitable for all purposes. Johnston, West End, Pittsburgh, Pa.

HOUSEBOAT FOR SALE AT BARGAIN.

Roomy and comfortable power houseboat. Now located in Florida. Main deck contains galley, engine room and crew's quarters, with large dining cabin and main saloon. Upper deck contains three large roomy staterooms and one single stateroom all equipped with regular beds. Bathroom with all modern and up-to-date fixtures. Standard engine in good condition. Completely equipped with cushions, carpets, linen, silver, china, glassware and crockery. For quick sale will sell at decided bargain. Further particulars furnished by Jos. A. MacDonald, 614 Monroe Ave., Plainfield, N. J.

FOR SALE—Sportsman's Hunting Cabin Cruiser, 40 x 12 x 23 in. draft. Been to Florida, 3 cabins, solid mahogany inside and out. Hardwood polished decks. Finest of her size in country. Sleeps six in comfort; fully furnished; everything the finest; 40 hp. Doman engine. Sacrifice, \$2,800 for quick sale. Vicinity, New York, Box 125, Jamaica, N. Y.

WANTED—A yawl, or schooner, length 85 to 100 ft. Draft not to exceed 4' 6". With or without auxiliary. Am looking for a bargain. Anyone wanting a fancy price for his boat need not answer. Motor Boating, Box 70.

FOR SALE—Two cylinder Emerson engine, 5 x 5, Paragon reverse gear, shaft, bearings, propeller; complete equipment. In first class mechanical condition and running order. Sale price \$110. Whole outfit good as new. Installing larger engine. Aug. Zilinski, Jr., Box 346, Arcadia, Mich.

SALE OF U. S. NAVAL VESSEL—Sealed proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until 12 o'clock noon, 25 June, 1919, when they will be publicly opened, for the purchase of the U. S. S. Jessamine S. P. 438, now at Detroit, Mich. Exact location may be ascertained from the Commandant, Ninth Naval District, Naval Training Station, Great Lakes, Ill., and should be obtained before making trips for inspection. Appraised value \$8,000. The sale will be for cash to the bidder offering the highest price, the Navy reserving the right to reject all bids. Forms of proposal and bond, information concerning the vessel, and the terms and conditions of sale, may be obtained upon application to the Bureau of Supplies and Accounts. Josephus Daniels, Secretary of the Navy. 5-20-1919

Marine and automobile engines 1 to 100 H.P. Best makes—good condition—very low prices. State your power needs. We take engines in trade. What have you? Magneto, coils, carburetors, mechanical oilers, water pumps, etc. Also car parts of every nature—sacrifice prices. Write about your requirements. Badger Motor Company, Milwaukee, Wis.

A few medium and high speed, one, two, four and six cylinder, four-cycle marine motors, new or rebuilt. Reliance Motor Boat Co., 210th Street and Harlem River, New York City.

FOR QUICK DELIVERY, at low prices, high grade, heavy duty, marine crude oil engines of 40, 60, 75, 85, 112 and 150 B. H. P. Recent changes in owner's plans makes these engines available. Jacobson Engineering Co., 5 Second Ave., Rensselaer, N. Y.

MOTORS—Marine and Auto style, from 1 to 6 cylinders. Bargains in Magneto, Carburetors, Coils, Gas Tanks, Classy Seats, etc. If you are fixing up your boat, write us and say what you need. Atlantic Supply Co., Long Branch, N. J.

For Sale—One 20th Century Engine—4 Cylinder, 6½ x 8. Now in Boat and in perfect working order. Has been run very little and looks like new. Only reason for selling is too small for Boat. Can be seen by appointment. Make offer. C. M. Beadenkopf, 14th & Walnut Sts., Wilmington, Del.

SALE OF U. S. NAVAL VESSELS (Motor Boats and Yachts)—Sealed proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until 12 o'clock noon, 25 June, 1919, when they will be publicly opened, for the purchase of the ELIZABETH now at Norfolk, Va.; SPARROW II now at Baltimore, Md.; CHRISTABEL now at New London, Conn.; WANDERER now at New London, Conn.; CORONA now at New London, Conn.; ST. SEBASTIAN now in the Seventh Naval District; COMMODORE now in the Seventh Naval District; EMELINE now at New London, Conn.; WADENA now at New London, Conn.; PATROL No. 7 now at Woods Hole, Mass.; SYLVIA now at Key West, Fla.; LOMADO now at Fairhaven, Mass.; QUICKSILVER now at New Orleans, La.; STINGER now at Hingham, Mass.; WHISTLER now at Hingham, Mass.; HELENA I now at Key West, Fla.; ALPHA now at Newport, R. I.; J. VAUD now at Indian Head Proving Grounds, Md.; THE WARBUG now at Key West, Fla.; PARTHENIA now at New London, Conn.; and the MARGARET now at New London, Conn. Exact location may be ascertained from the Commandant concerned, and should be obtained before making trips for inspection. Appraised values: ELIZABETH \$7,000; SPARROW II \$4,800; CHRISTABEL \$30,000; WANDERER \$57,000; CORONA \$70,000; ST. SEBASTIAN \$2,000; COMMODORE \$15,000; EMELINE \$51,000; WADENA \$12,000; PATROL No. 7 \$13,000; SYLVIA \$1,500; LOMADO \$9,500; QUICKSILVER \$6,500; STINGER \$23,000; WHISTLER \$7,000; HELENA I \$700; ALPHA \$400; J. VAUD \$6,000; WARBUG \$15,000; PARTHENIA \$15,000; MARGARET \$63,000. The sale will be for cash to the bidder offering the highest price, the Navy reserving the right to reject all bids. Forms of proposal and bond, and information concerning the vessel, and the terms and conditions of sale, may be obtained upon application to the Bureau of Supplies and Accounts. Josephus Daniels, Secretary of the Navy. 5-16-1919.

We have 136 motors, 1½ to 100 H.P. We have everything you want for boat or motor. Get our list. Jesiek Boat Co., Grand Rapids, Mich.

FOR SALE—Fifty Continental 6 cylinder engines equipped with Bosch Magneto, Schebler Carburetors, Autolight generators used for demonstration purposes only, never in cars, \$80.00 each F. O. H. Austin, Texas. Walter Tips Co., Austin, Texas.

FOR SALE—Twenty-five slightly used 10 H.P. four cylinder Carson Marine Motors, single or lot orders. Special price. A bargain. Write at once. "Friend" Manufacturing Co., Gasport, New York.

FOR SALE OR EXCHANGE—New Cabin Cruiser. In commission one year. 65 x 12 x 4 Built by one of the best builders on Great Lakes. Well found. Everything first class. Sterling Engine, 6 cyl. 85-145. Cruising radius 700 miles. Capacity gas 400 gal. Water 75 gal. Plenty linen, silver, china, glass and crockery. Address S E. Roll, 804 Ohio Bldg., Toledo, Ohio.

SALE OF U. S. NAVAL VESSELS (YACHTS AND MOTOR BOATS)—Sealed proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until 12 o'clock noon, 30 June, 1919, when they will be publicly opened, for the purchase of the Yachts and Motor Boats SEA HAWK now at Key West, Fla.; GREY FOX, now in the Fifth Naval District; THETIS, now at New London, Conn.; POPE MARY, now at Key West, Fla.; TRAVELER, now at Key West, Fla.; VEGA, now in the Fourth Naval District; ZIG ZAG, now at Key West, Fla.; KANISED, now at Norfolk, Va.; YO HO, now in the First Naval District; GREY HOUND, now at Marathon, Fla.; COSSACK, now at Key West, Fla.; EDITH M. III, now in the Marine Basin, N. Y.; SHIRIN, now at New Orleans, La.; NIGHTINGALE, now at New London, Conn. Exact location may be ascertained from the Commandant, concerned, and should be obtained before making trips for inspection. Appraised values: SEA HAWK \$15,000; GREY FOX \$7,000; THETIS \$15,000; POPE MARY \$5,000; TRAVELER \$4,000; VEGA \$102,000; ZIG ZAG \$4,000; KANISED \$12,000; YO HO \$2,000; GREY HOUND \$3,300; COSSACK \$16,500; EDITH M. III \$6,000; SHIRIN \$12,000; and NIGHTINGALE \$4,000. The sales will be for cash to the bidders offering the prices, the Navy reserving the right to reject all bids. Forms of proposal and bond, and information concerning the vessels, and the terms and conditions of sale, may be obtained upon application to the Bureau of Supplies and Accounts. Josephus Daniels, Secretary of the Navy. 5-23-1919

THE MOTOR BOATING MARKET PLACE

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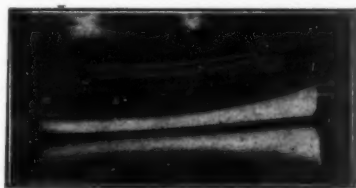
Cut one inch deep, one column wide..... \$3
Cut 1½ inches deep, 1½ columns wide..... \$5
Cut 2½ inches deep, three columns wide..... \$15

Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offer of the month. Please mention MoToR BoatingG.



For Sale—Speed Launch, 30 ft. by 5 ft. 9 inches. Fine condition; mahogany deck. Equipped with 35 h.p. Peerless Motor and Neville Starter, with Storage Battery. Motor practically new. Can be seen any time. Elderfields Mechanics Co., Port Washington, L. I. Tele. 360.



FOR SALE: 23 foot motor boat and tender, full equipment, first class condition, two cylinder 5 H.P. Palmer engine. Boat now in water; sacrifice for first offer. Arthur F. Madge, 15 Prospect Terrace, Montclair, New Jersey.

FOR SALE—Cabin Boat—30 ft. x 7 ft., 12 H.P. Engine. Speed about 12 miles per hour. Boat and Engine in excellent condition. No reasonable offer refused. Photo on request. W. A. Crawford, 445 Union St., Hudson, N. Y.

35 x 14 Converted Yawl. Full headroom, mahogany interior, all improvements, engine taken out but otherwise complete, seen afloat at Highland Beach, Address Nixie, c/o Box 303, Highlands, New Jersey.

25 foot Fay & Bowen Torpedo Stern Launch Hull for sale, no engine. Seen afloat at Irwin's Basin, Red Bank, New Jersey. Address Kermath, c/o Box 303, Highland, New Jersey.

WANTED—CRUISER 30 to 36 ft. which can be delivered to me by Sept. 1, at some point on the Mississippi or Missouri river, or waters leading to same. Send photo, minute description, and name lowest cash price. Roy A. Davidson, Elizabeth, Colorado.

NEW AND USED AIRPLANE MOTORS

Use an airplane motor
in your boat
More Power and Speed
Less Gasoline and
Weight

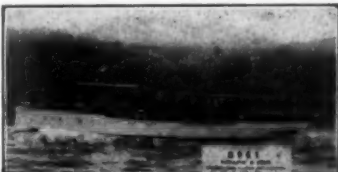
Airplane Motors, 30 to 300 H.P.
Lowest Prices.

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Whistle Blower Outfits
Blower runs by friction
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20 feet. A lifelong
convenience.
Made in 3 sizes.
TRIMOUNT ROTARY POWER CO.
20 Heath Street Boston, Mass.
(Factory: 292 Whiting Ave., East Dedham, Mass.)



No. 3941—For Sale—Very low price. 72' twin screw motor yacht which has been in Government service. 12' 3" beam, 4' draft, twin screw, 40/60 H.P. each, Murray & Tregurtha engines. Mahogany interior finish, deck joiner work, teak deck. Needs new stem and general overhauling but owner will accept very small figure for prompt sale. Hauled out New York. For plans and further particulars apply to Gielow & Orr, 52 Broadway, New York. Phone 4673 Broad.

TO SAILORS OF LIMITED MEANS—Build your own motor boat power driven for all around cruising, etc., for \$5. I mail you blue prints showing plainly all plans, details, working drawings and specifications. Easy to understand and build at little cost. No experience required; you may buy the materials gradually as you need them. Length O. A. 15' 0", beam 4' 6", draught 1' 0". Whitehorn & Leitch, Naval Architects, 311 Ocean View Ave., Woodhaven, L. I., N. Y.

TO EXCHANGE:—Fine improved 100 acre Central Louisiana farm on Red River. Near Town, Church, School. Raises five crops a year. Trade for 50 to 70 foot motor Yacht. Address Frank Suffern, Joyce, La.

MOTOR BOAT "RACQUETTE"

Raised-deck Cruiser, 40 by 9½ feet, new 30-horse standard engine, fine accommodations, ice-box, toilet, water tank, awnings, curtains, cushions, fully equipped; price \$1,500. Can be seen at Johnson & Stune boatyard, Travers Island, Pelham. For particulars—OWNER, Box, 14 MoToR BoatingG.

To Charter—Gentleman will charter auxiliary sloop or yawl not over 50 ft. with experienced sailing master. Boat must be comfortable, fast and seaworthy. Either July, August or both. Also for three months Southern cruise next Fall. No junk. Box 3, MoToR BoatingG.

30 ft. Hand V bottom Runabout, mahogany trim, complete in every way, two six cylinder engines driving Twin Screws, speed 25 miles per hour, boat new July last year. Demonstration given. D. B. Roberts, 51 Elm St., Hartford, Conn.

RUNABOUT

Brand new speedster for sale; has never been in the water. Standard make, latest design. Will sell at discount. For further particulars address MoToR BoatingG, Box 53.

SALE OF U. S. NAVAL VESSELS. (Yachts and Motor Boats).—Sealed proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until 12 o'clock noon, 3, July, 1919, when they will be publicly opened, for the purchase of the Yachts and Motor Boats DAIQUIRI, S. P. 1285, now at East Boston, Mass.; ESTELA, S. P. 537, now at Bumpkin Island; LYNX II, S. P. 730, now at East Boston, Mass.; ADMIRAL II, S. P. 967, now at Boston, Mass.; ARCTURUS, S. P. 182, now at New York; WEMOOTAH, S. P. 201, now at New York; RUTOMA, S. P. 78, now at New York; KATHERINE K, S. P. 220, now at Key West, Fla.; NAUSHON, S. P. 517, now at Bensonhurst, N. Y.; RONDO, S. P. 90, now at Key West, Fla.; PATROL No. 1, S. P. 45, now at Key West, Fla. Exact location may be ascertained from the Commandant of the District concerned, and should be obtained before making trips for inspection. Appraised values: DAIQUIRI, \$14,500; ESTELA, \$4,000; LYNX II, \$13,000; ADMIRAL II, \$18,000; ARCTURUS, \$15,000; WEMOOTAH, \$10,000; RUTOMA, \$5,000; KATHERINE K, \$1,500; NAUSHON, \$22,000; RONDO, \$2,500; PATROL No. 1, \$2,000. The sales will be for cash to the bidders offering the highest price, Navy reserving the right to reject all bids. Forms of proposal and bond, and information concerning the vessels, and the terms and conditions of sale, may be obtained upon application to the Bureau of Supplies and Accounts. JOSEPHUS DANIELS, Secretary of the Navy. 5-31-19.



FOR SALE:—Cape Cod C. B. Cat "Gemin", 28' x 12' x 30" roomy cockpit, comfortable cabin, 7 H.P. Lathrop, good rig, cushions, skiff, sacrifice. \$600 cash. Rosemond, Forley St., Elmhurst, N. Y.

Canadian Newfoundland Wholesale Retail Marine Engine Jobbers. Dominion's largest distributors. Illustrated catalogue showing dozen various makes 10c. Canadian Boat & Engine Exchange, Limited, Toronto, Canada.

FOR SALE—Matthews 1 Kw, 32 V, Boat Lighting Outfit, Engine, Generator and automatic Switchboard. Almost new, but too noisy for houseboat. Will sell at a bargain. Grove Park Motor Car Co., Asheville, N. C.

BARGAINS

BARGAINS

EAGLE TWO CYCLE ENGINES

We purpose to close out at greatly reduced prices our entire stock of "Eagle" two cycle engines, as we intend to discontinue the manufacture of this type of engine in the future. Write at once for information to the

TORRINGTON COMPANY

STANDARD PLANT

Torrington, Conn.

SALE OF U. S. NAVAL VESSELS, (Yachts and Motor Boats).—Sealed proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until 12 o'clock noon, 16 July, 1919, when they will be publicly opened, for the purchase of the Motor Boat BIVALVE S. P. 2472, now at New York; the Motor Yacht ATLANTIS S. P. 40, now at New York; the Motor Boat COYOTE S. P. 84, now at Grant Park Naval Station, Chicago, Ill.; the Steamer ROAMER S. P. 1047, now at New Orleans; the Motor Boat PALOMA S. P. 533, now at Boston, Mass.; the Steam Yacht SISTER S. P. 822, now at New Orleans; the Motor Boat MAGGIE S. P. 1202, now at Norfolk, Va.; the Motor Boat GLENDOVEER S. P. 292, now at New Orleans; the Motor Boat WACHUSETT S. P. 548, now in the First District; the ACTUS S. P. 516, now in the First District; the Motor Boat HETMAN S. P. 1150, now at Miami, Fla.; the Motor Boat RUSS S. P. 1151, now at Miami, Fla. Exact location may be ascertained from the Commandant, of the District wherein the vessels are located, and should be obtained before making trips for inspection. Appraised values: BIVALVE, \$3,600; ATLANTIS, \$5,000; COYOTE, \$1,500; ROAMER, \$12,000; PALOMA, \$16,000; SISTER, \$3,500; MAGGIE, \$9,500; GLENDOVEER, \$6,250; WACHUSETT, \$13,000; ACTUS, \$25,000; HETMAN, \$14,500; RUSS, \$14,500. The sales will be for cash to the bidders offering the highest price, Navy reserving the right to reject all bids. Forms of proposal and bond, and information concerning the vessels and the terms and conditions of sale, may be obtained from the Bureau of Supplies and Accounts. JOSEPHUS DANIELS, Secretary of the Navy. 6-5-19.

For Sale:—Caille Perfection 2 cylinder 16 H.P. engine with magneto like new, \$125. Stanley A. Hooker, Covington, Ky.

FOR SALE—One Model "R" Sterling Motor 250 H. P., 8 cyl., 5½ x 6¼, with complete set of extra parts. One Model "1-B" Van Blerck Motor, 180 H. P., 8 cyl., 5½ x 6. Both motors in excellent condition throughout. Will sell at low price for quick sale. E. P. Farley Co., Chicago, Ill.

When writing to advertisers please mention MoToR BoatingG, the National Magazine of Motor Boating

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UP TO DATE DESIGNS

Complete plans, Instructions and Patterns. Latest and most efficient designs in Fast V Bottom Runabouts and Cruisers, Seagoing Cruisers and Auxiliaries, Hydroplanes, Yacht Tenders and Bow Boats. State type of boat wanted and write for Blue Prints. Latest thing out for Amateur Builders. A 30 foot V Bottom runabout especially designed to give best results with a Ford Auto Engine. Speed, 18 to 20 M.P.H.

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YACHT BROKER
501 FIFTH AVE., at 42nd St., N. Y.
Desirable yachts of all types for sale and charter
Telephone 928 Vanderbilt

The Possibilities of Standardization

(Continued from page 34)

hundred dollars, or perhaps even more. As the raised-deck boat offers the most amount of room and at the same time, due to its simplicity of construction, is the most economical to build, it would naturally follow that this style should be adopted. Of equal importance is plenty of beam and a full broad stern of the square- or V-transom variety. While this latter type is less economical as to room and costs than the other, it does not give such a plain sawed-off appearance; and as looks are a consideration also, it might not be unwise to plan accordingly, especially in view of the fact that nothing has been actually wasted as in the case of the canoe stern. Additional room can also be obtained by having the ends plumb or nearly so.

Galvanized fittings are plenty good enough and never look as though they had been neglected. A canvas-covered hatch on the cabin top not only is very much less expensive than a hinged skylight, but will keep things drier. A galvanized pipe awning frame costs less than one made of wood and looks more shipshape, but on the other hand nothing looks less so than an awning with scalloped edges. Moreover, matters are not improved by vividly painting the rims of port lights so as to give them great prominence. It is the combination of these little details, insignificant as some of them may be, that help to reduce the cost and improve the general appearance.

In deciding upon the proper arrangement, the size and purpose for which the boat is to be used must of course be considered, but it would seem that in every case, whether it was an 18- or 40-foot cruiser, the same care should be exercised in providing the maximum service and comfort. As to the advisability of placing the motor in the middle of the cabin, this is another question on which there is a difference of opinion, but as the marine engine of today can be depended upon to do its work, and as the space it occupies can be utilized to good advantage in the stock boat, as in any other, the better plan would be either place it and the tanks under the cockpit floor, if the size of the boat will permit, or if not, under an elevated portion of it. In either case, however, provision must naturally be made for a means of ready accessibility in the event of trouble. It has often been observed that more harm is done an engine by subjecting it to strong-arm methods than by leaving it alone. The automobile engine, way up ahead beyond reach as it is, seems to perform its duties quite satisfactorily and no one thinks anything about it. Why, therefore, should we pamper the marine outfit? The size of the engine should be moderate, for here is an item of considerable expense. Sufficient power to plug along at about eight miles should be enough for the fellow who is in the sport to stay, especially with gas at present prices.

Now, with these general features as a foundation, the next thing is to embody them into a good-appearing and seaworthy hull, but this is easier said than done. A trim, shipshape, businesslike looking craft will always command a fair price even though it may be deficient in other respects, yet often the one that is much superior but lacking in appearance has to be given away, so to speak. Therefore, unless the builder is capable of preparing a design that will conform to the ideas of the discriminating boatman, he should employ the services of a first-class naval architect of wide repute.

Advertising Index will be found on page 100

TAMS, LEMOINE & CRANE

Yacht and Ship Brokers
Naval Architects
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New York

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153-5-9 West 15th St., New York City

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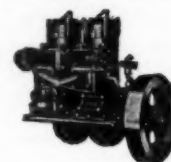
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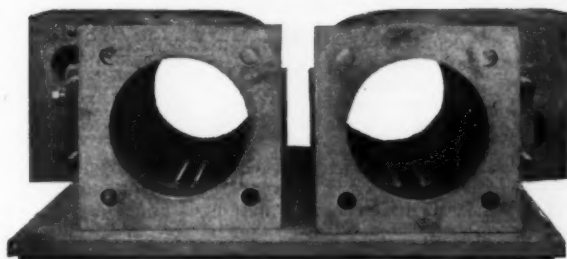
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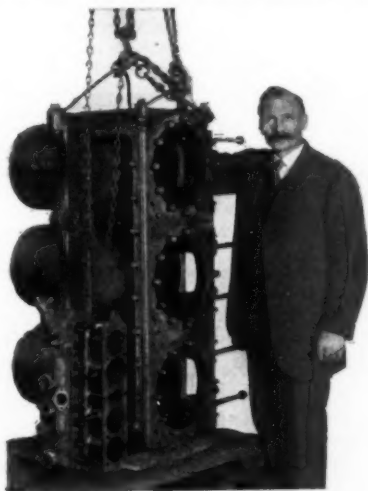


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My Ideal Auxiliary—Volante

(Continued from page 28)

A feature at once noticed is that she is of the raised-deck type. Those familiar with the sport will appreciate that this is no innovation, as many boats, even some of our speediest racing sloops, are so designed. As with motor boats, this type of cabin offers many advantages. It increases the freeboard where most needed and, with the boat cut to the full depth, excellent headroom and ventilation are obtained throughout. Another recommendation for this type of cabin is that the deck is not cut by cabin trunks and, together with the increased freeboard, a decidedly staunch hull results. The rail is virtually a continuation of the sides, giving maximum deck room. The cockpit is large and well above the L.W.L., draining aft. It is floored with uncoated teak and is provided with a deadlight under which is placed the compass, which is therefore in plain sight at all times.

The companionway to starboard leads to the cabin. The accommodation plans show the layout as well perhaps as may be stated in words. Cruising accommodations are normally for two, while if necessary a third or even a fourth may find comfort aboard. Of course, for a day's sail a considerable party may be carried. The less a boat is cubbyholed the more comfortable it will be, especially when ventilation is considered. So, for that reason, I have left her entirely open save for a bulkhead forward to segregate the toilet from the saloon. Located forward the toilet is where it belongs and is ventilated by a large hatch provided with large deadlight for light. The saloon and galley are lighted and ventilated by an extra large skylight, the companionway,

TABLE OF OFFSETS																							
STATION	HALF BREADTHS										HEIGHTS ABOVE BASE												
	SWAY	SWAY	WL 1A	WL 1A	WL 1A	WL 1B	WL 1B	WL 3B	WL 3B	WL 3B	HEEL	HEEL	HEEL	HEEL	HEEL	HEEL	HEEL	HEEL	HEEL				
1	1-4-1	1-3-7	1-0-7	0-9-7	0-8-5	0-7-4					0-5-0	0-0-4	5-1-4	0-0-0	0-1-5	0-7-4	1-0-4						
2	2-3-2	2-4-5	2-1-4	1-0-5	1-0-5	1-1-3	0-9-7				0-5-5	0-0-4	5-1-0	4-1-1	0-10-4	0-5-6	5-1-3	1-0-4					
3	3-9-1	3-8-8	3-8-3	2-9-7	2-9-7	2-9-0	1-3-4	0-6-6			0-5-5	0-0-4	5-0-2	3-6-0	0-9-4	0-4-1	4-2-5	0-9-1	7-4-0				
4	4-10-0	3-9-7	3-8-8	3-4-4	3-3-8	2-9-4	2-0-3	1-1-3	0-6-1		0-5-1	0-0-4	5-3-4	0-10-4	0-8-9	0-1-4	3-8-0	4-5-5	5-4-1				
5	4-5-4	4-3-0	4-1-3	4-1-3	3-0-1	3-5-4	2-8-0	1-1-3	0-7-7	0-2-3	0-4-6	0-1-0	1-9-1	0-7-5	0-7-2	0-0-7	5-3-4	4-0-0	4-9-2				
6	4-4-3	4-4-3	4-4-5	4-5-7	4-4-4	3-0-7	3-5-0	2-0-3	0-10-7	0-4-0	0-4-5	0-2-0	1-9-4	0-5-4	0-8-1	1-10-4	5-1-0	5-0-7	4-4-4				
7	4-0-0	4-0-4	4-0-7	4-0-4	4-1-4	4-4-0	3-4-0	2-3-5	1-0-4	0-4-6	0-3-0	0-3-0	0-3-0	0-1-4	0-4-3	0-8-1	7-10-1	2-1-5	5-7-2				
8	4-0-0	4-0-3	4-0-6	4-0-0	4-0-3	4-6-1	3-7-7	2-4-0	1-0-5	0-4-5	0-3-1	0-3-0	0-5-0	0-3-4	0-8-1	0-3-7	0-4-0	7-0-4	2-1-4				
9	4-0-4	4-0-1	4-0-2	4-0-4	4-0-1	4-5-4	3-7-0	2-1-4	0-10-4	0-3-7	0-2-7	0-2-7	0-4-5	0-3-0	0-6-4	0-3-4	0-4-1	7-0-1	7-0-7				
10	4-0-0	4-0-2	4-0-0	4-0-4	4-0-4	4-1-8	4-2-4	3-0-8	1-0-1	0-4-7	0-0-7	0-0-0	0-2-0	0-3-1	0-5-1	0-4-1	0-8-5	7-10-1	7-0-7				
11	4-0-2	4-0-3	4-0-3	4-0-3	4-0-4	3-10-2	3-10-1	0-10-2	0-8-3	0-1-6	0-1-4	0-1-5	0-1-7	0-1-5	0-5-2	2-3-1	7-0-4	7-0-2					
12	4-0-2	4-0-4	4-0-4	4-0-7	4-10-0	3-10-3	3-10-3	0-10-0	0-1-4	0-1-2	0-1-1	0-1-1	0-1-5	0-1-0	0-3-0	3-5-6	7-0-4	7-0-1					
13	5-0-1	5-10-2	5-10-2	5-9-4	5-0-0	1-5-5	0-1-5				0-0-1					4-11-2	7-0-5	7-4-4					
14	5-0-3	5-0-3	5-0-1	5-0-4	0-0-3						0-1-4					5-11-5	7-5-3	7-1-4					
15	5-0-2	5-1-4	5-1-4	5-1-0	0-0-0											7-10-3	7-0-4	6-4-5					
DIAGONALS																							
STATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	HEIGHT ON CHUTE SIDE AT STATION 5-5-4							
A	0-4-1	1-0-2	1-7-4	0-5-4	0-9-4	2-0-7	2-1-5	2-10-2	2-5-4	3-2-0	1-0-4	1-3-4	0-5-0				" " " "						
B	0-4-1	1-4-1	0-0-1	2-5-5	0-9-3	2-0-7	2-1-5	2-10-2	2-5-4	3-2-1	1-9-4	0-4-1	1-10-4	1-1-4	0-0-0		" " " "						
C	0-4-1	1-9-3	0-6-0	3-0-4	0-9-1	3-4-4	3-0-9	3-0-1	3-0-9	3-7-3	3-3-5	3-1-1	5-0-0	0-1-5	0-10-0		" " " "						
D	0-4-1	0-4-4	2-11-0	3-7-1	4-1-4	4-4-5	4-0-9	4-11-1	4-0-4	4-8-4	4-4-2	3-11-0	5-2-0	0-5-1	1-1-4		" " " "						
E	1-1-5	2-2-0	0-0-5	4-0-4	4-0-4	4-9-2	5-0-6	5-14-1	5-0-1	5-0-4	4-4-4	4-4-4	3-0-0	3-0-0	2-0-4		" " " "						
F	1-1-5	2-2-1	3-1-4	3-0-7	4-4-3	4-0-1	5-0-1	5-1-4	5-1-3	4-9-7	4-4-1	4-1-1	3-4-5	3-4-5			" " " "						
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and three large air ports in the cockpit ceiling. The two large transoms make things comfortable below and the little folding table, supported on pipe stanchions, adds greatly to the convenience. Long shelves above the transoms are handy for books and trinkets.

Directly abaft the port transom is the galley, consisting of a dresser, Shipmate coal range, dish-racks and pan-shelves. The stove rests upon coal and charcoal bunkers and the pipe leads to a Liverpool smokehead

through the bridge. Aft of the pantry comes a large lazarette for stowing all variety of odds and ends not often used. The fresh-water tank, filled from the deck, is placed just aft of the lazarette. A steerage for storm clothes is located on the starboard side nearest the companionway steps, so that these wet, dripping garments need not be carried through the boat. Aft of the steerage is the ice-box. Particular attention should be given the fact that the ice-box is iced from the deck, so that ice is not carried through the boat to dirty up things in general. The large fuel tank completes the important items aft. The motor is located under the bridge deck and cockpit floor without interfering with saloon space. Large stowage provides for shelves and wardrobes in toilet, transoms, drawers, lazarette, and dresser.

A glance at the construction plans will show you a boat in which every means is taken to secure a very substantial hull. The fact that she is an auxiliary forecloses all attempts at a racing machine, so racing craft she is not, but an out-and-out cruising auxiliary, which is, after all, what we started out to describe.

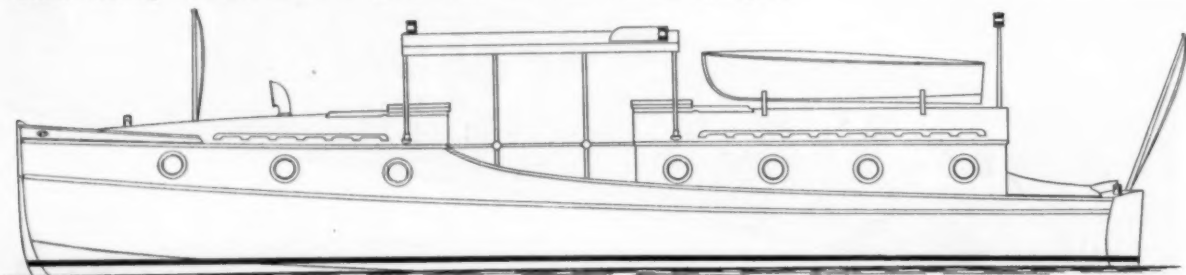
A New Rochester Cruiser

A 40-FOOT cruiser with two separate cabins is the new design of the Rochester Boat Works, Inc., which is intended to embody the maximum of comfort and convenience on a craft of that size. Room for four persons is arranged in the forward cabin, where two permanent berths are installed, with their backs pipe berths to make upper berths. A toilet room is forward of the cabin.

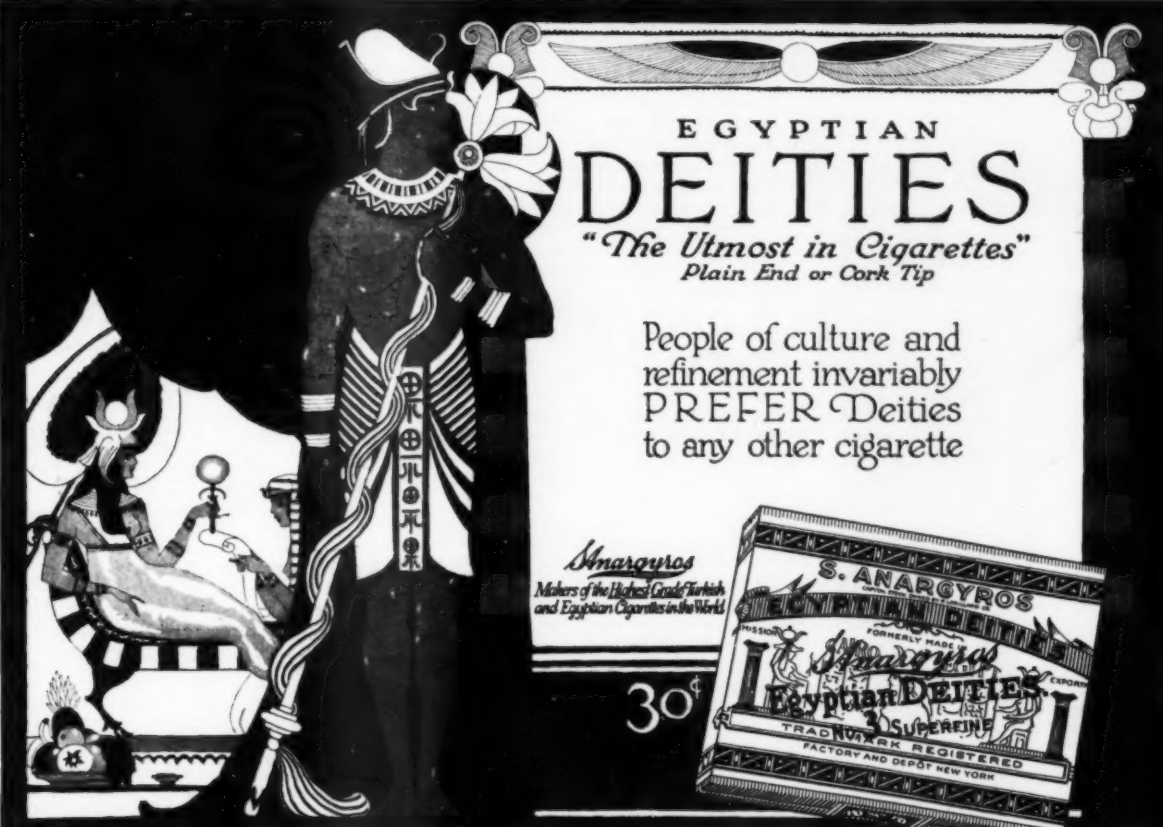
Two persons are accommodated in the after cabin, which also includes the galley, which makes it a better place to work in when the boat is rolling than it would be further forward. Instead of an oil burning stove, a Shipmate range has been provided, serving the double purpose of giving better cooking facilities and heating the cabin in cold

weather. Both cabins are provided with ample drawer and locker space.

Either four- or six-cylinder engines may be installed with the motor placed under the bridge deck, and the fuel tanks in the wings also under the bridge deck. Full length hatches are provided over the motor, and the compartment may also be entered either forward or aft. J. I. Brandenburg of New York is to use one of these craft on Great South Bay, equipped with a Model M four-cylinder Van Blerck, and William J. Erdle, of Rochester, is to use one on Lake Ontario and the St. Lawrence River, powered with a Lacy eight-cylinder V-type motor, and the company has a number of other prospects.



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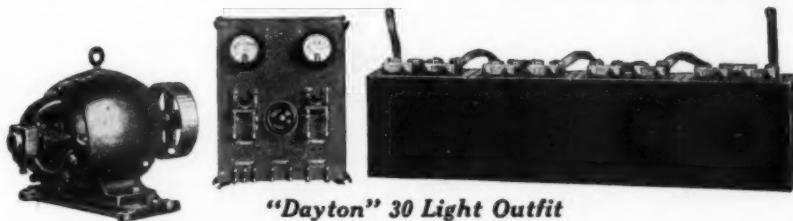
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The Homing Pigeons Are Returning

(Continued from page 39)

Louisiana port. These men from the club who have been on the water so long will not be kept away from it now, and already Commodore Percy S. Benedict, the governing board and the regatta committee is at work on plans for the coming season, when it is hoped to erect the new clubhouse, for which plans have been drawn by Ratibone de Buys, architect, and member of the club. It is probable that the annual cruiser-race to Pensacola, the biggest motor boating event of southern waters, will be resumed this year. It was dropped during the war, and a cruise to Biloxi, Miss., substituted, but there has been such demand for the longer cruise that it is considered probable that it will be put back on the program. The summer season of the club will open, as usual, in May, and the first motor boat regatta will be held in June.

With the membership of the club increased from 950 to nearly 1,700 in a little more than a year, and with all but eight of those who volunteered in Uncle Sam's service coming back, Lake Pontchartrain will become more than ever the center of motor boating and yachting in the South. A number of new boats have been registered in the club fleet, among them Au Revoir, a handsome motor craft belonging to Walter Gillican, while the majority of the old timers will be back on the job. It is understood that at least some of the motor boats purchased by the Government will be sold at the naval station and it is quite probable that they will find buyers in New Orleans, and will return to their old places on the S. Y. C. roster.

There is always, however, a sad side to war, and there are those who will never again sign the roll at the West End Clubhouse. Among them are Tom Gragard, killed in France; John J. Gillespie, killed in France, and the following, who died in service on land and sea: George B. Penrose, Frank Pfeifer, G. L. Soniat, F. P. Magee, Jr., Leo Ujffly and Thomas Foley.

The full list of the members of the Southern Yacht Club who went into the service of the nation is as follows: Robert Alker, 1635 State St.; Ernest E. Allgeyer, 5018 St. Charles Ave.; W. W. Armour, 817 Hibernia Bldg.; George Bacich, 3737 Gentilly Terrace; Dr. C. A. Bahn, 1524 State St.; J. H. Baldwin, 2624 Prytania St.; Leslie P. Beard, 721 Hibernia Bldg.; Stanley Behrman, 228 Pelican Ave.; Joseph Bernard, 1000 Perin Bldg.; Bryan Black, 1517 Nashville Ave.; J. Carroll Bobb, 1735 Palmer Ave.; Wayne G. Borah, 1921 Prytania St.; Theodore Brierre, 1024 Jackson Ave.; E. C. Brouen, 904 Hibernia Bldg.; R. G. Carter, Jr., 1918 Napoleon Ave.; D. B. H. Chaffe, 1575 Calhoun St.; O. V. Claiborne, 1225 Peniston St.; James Coker, 936 Washington Ave.; Ralston F. Cole, 4909 St. Charles Ave.; John T. Daly, 1328 Second St.; F. R. Daniels, P. O. Box 62; Dr. J. A. Danna, 716 Maison Blanche Bldg.; Eugene J. Dansereau, 2027 Milan St.; Harry L. Deas, 1020 Camp St.; T. Bayne Denegre, 3105 Prytania St.; F. Otway Denny, 419 Whitney Bldg.; J. L. DeTre-

(Continued on page 60)

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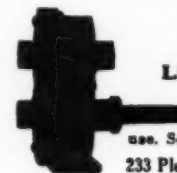
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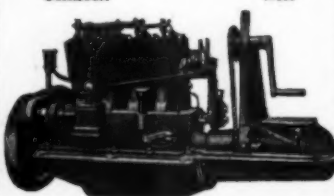
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The Homing Pigeons Are Returning

(Continued from page 58)

ville, 618 Hennen Bldg.; John Devlin, 3535 St. Charles Ave.; Thomas J. Devlin, 3535 St. Charles Ave.; George Dicks, 600 Magazine St.; Albert Fabacher, Jr., 1901 Jackson Ave.; W. A. Fenillan, 1727 Bayou Road; Dr. E. D. Fenner, 850 Carondelet St.; L. M. Finley, 1317 Octavia St.; Edward Finley, 700 St. Charles St.; Tuttle Flaspollar, 1228 State St.; L. C. Frantz, Jr., 2412 General Pershing St.; David Freeman, 1304 First St.; Alvin Fromherz, 1133 State St.; C. C. Furr, Metairie Ridge; Raymond Gauche, 4802 St. Charles Ave.; Dr. Addley Gladden, Charity Hospital; J. Bonner Gladney, 2000 Palmer Ave.; Lewis S. Goldstein, 512 Canal St.; Walter K. Grant, 2112 General Pershing St.; Chester Green, 315 Eliza St.; Frank Groves, 517 Hibernia Bldg.; Morris E. Hansell, 123 Carondelet St.; F. F. Hansell, Jr., 123 Carondelet St.; C. C. Hanson, Metropolitan Bank Bldg.; Dr. George J. Hauer, 1115 Maison Blanche Bldg.; H. W. Hayden, 2605 Marengo St.; W. H. Hendren, 6039 Prytania St.; Frantz Hinderman, Jr., 1912 Palmer Ave.; C. J. Holland, 1828 Peters Ave.; Mayer Israel, 714 Canal St.; W. Catesby Jones, 1410 St. Andrew St.; M. J. Kahoo, Jr., 1217 Jackson Ave.; C. Karst, Jr., 941 Royal St.; Felix H. Kuntz, Carrollton and St. Charles Aves.; R. C. Lally, Penick & Ford Co.; Folwell Legendre, 12 Audubon Place; Marian Legendre, 406 Walnut St.; J. W. Lepine, 6024 Hurst St.; G. M. Levert, 3425 St. Charles Ave.; John P. Longmeire, 1522 St. Mary St.; Chandler S. Luzenberg, 1230 State St.; Lucian E. Lyons, Jr., 828 Howard Ave.; Henry Macheca, 3022 St. Charles Ave.; Pearl Mackie, Julia and Tchoupitoulas Sts.; James J. Manson, Jr., 4 Audubon Place; A. J. Marion, Jr., 6 Neron Place; C. A. Marone, 921 Maison Blanche Bldg.; William H. Mathews, Jr., 3313 Prytania St.; Edgar Monroe, 3953 Camp St.; George P. Montagnet, 1133 Claiborne St.; Frank Monteleone, Monteleone Hotel; Harold P. Nathan, Ass. of Commerce; Charles Neely, Interstate Bank; Hart D. Newman, 1635 Amelia St.; Peter O'Donnell, 1538 Fourth St.; W. L. O'Donnell, 1538 Fourth St.; Sherman Parden, 1750 St. Charles Ave.; Sterling Parkerson, 2912 Prytania St.; Dr. W. T. Patton, 2007 Palmer Ave.; W. E. Penick, 1 Audubon Place; Theodore L. Perrier, 1421 Dauphine St.; E. G. Pinac, 1725 Bayou Road; Michel Provosty, 8181 Plum St.; Hadley Prudhomme, 605 Hibernia Bldg.; R. Prudhomme, 1212 Constantinople St.; Leo Reilly, 1737 Carondelet St.; James Rhea, 1427 Montegut St.; W. T. Ritter, 2117 Octavia St.; George Robert, 1516 Calhoun St.; G. W. Robotham, 16 Neron Place; Dr. T. R. Rudopf, DeSoto Hotel; P. J. Schoen, 519 Elysian Fields Ave.; W. T. Schully, 205 S. Scott St.; A. M. Scott, 411 Broadway St.; L. B. Scranton, P. O. Box 92; Harold Semple, 1040 Audubon St.; St. Mark Shephard, 3735 S. Claiborne Ave.; Dr. John Smyth, 1531 Carrollton Ave.; R. F. Spangenberg, Jr., 1203 St. Mary St.; P. A. D. Stouse, 633 Esplanade Ave.; W. P. Stouse, 633 Esplanade Ave.

(Continued on page 62)

Advertising Index will be found on page 100

Sandusky Dinks

The famous Davis Dink to be known from now on as the Sandusky Dink

The Ideal Tender



From now on the "Davis Dink" is to be known as the "Sandusky Dink." The change is in name only—the quality of material and excellence of design will remain the same.

"Sandusky Dinks" are light, strong and serviceable. Both row and power are continually in stock in sizes from 8 to 18 feet. Send for catalog today.

Sandusky Boat & Cabinet Works, Sandusky, Ohio

RUNABOUTS

19, 22 and 25-Footers Standard Models Complete with Power and Equipment or Hulls built to order complete at very reasonable prices. Dinks, Power Tenders and Row Boats.

BADGER MOTOR BOAT CO., Inc.
Address, Lake Ave., Cor. 4th St., Racine, Wis.

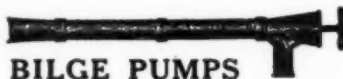


You Can Build Your Own Boat

and save 1/3 the cost by the BROOKS K. D. SYSTEM.

Send for catalogue showing all models.

BROOKS MFG. CO., SAGINAW, MICH.
1101 RUST AVE.



BILGE PUMPS

Copper or Galvanized Steel—2 to 4 inch diameter—any length. Also Sectional Pumps with removable valve.

Write for prices. Discounts to dealers.

BLUE & QUERPEL CO., 230 Third Ave., New York City



Baldridge Reverse Gear
You can get a Baldridge—the original all-enclosed, time-tested reverse gear—now—for immediate delivery. Booklet "For the Man in the Boat" Free. THE BALDRIDGE GEAR CO. Boston, Mass.

ATWATER KENT

SCIENTIFIC IGNITION

Atwater Kent Mfg. Wks. Philadelphia



JOYMOTOR PERFECTED

Rowboat Motoring at its best

Joymotor advantages are a powerful, dependable motor, extreme light weight and the original reversing propeller. Get agency offer.

JOYMOTOR MFG. CO., Dept. A
State-Lake Building, Chicago

The VICTORY of the NC-4 was a VICTORY for GULF LUBRICANTS

The motors of the NC-4, winner of the sensational Trans-Atlantic flight from America to England, were lubricated with

GULF LIBERTY AERO OIL

This wonderful machine used "Gulf" oil on its entire flight. The Navy carefully provided supplies of "Gulf" oil at Rock-away and at all stations along the entire course—Halifax, Nova Scotia; Trepassey Bay, Newfoundland; Horta and Ponta Delgada, Azores; Lisbon, Portugal; Plymouth, England, and on all supply ships.

PERFECT LUBRICATION IMPERATIVE

This epochal flight was made possible by perfect lubrication. After exhaustive scientific tests of all oils GULF LIBERTY AERO OIL was selected for this SUPREME TEST.

Use Gulf Lubricants and Win

GULF REFINING COMPANY

There is more power in

**THAT GOOD GULF GASOLINE and SUPREME AUTO OIL
THE CHOICE OF DISCRIMINATING USERS**

Made fresh—*instantly*.
No coffee pot—
No cooking.

Take G. Washington's Coffee with you on your trips. A little can makes many cups and is easy to carry and easier to use. It is absolutely pure coffee with the waste and woody substance removed, and is ready any time, any place—all you need is water and a cup.

Went
to War!
Home
Again.



G. Washington's
COFFEE

Ready when you pour on
the water — hot or cold.



STANDARD KID

Four Cycle Light Weight Engines

Five sizes—Single cylinder 3½ H.P., 4 H.P., 7 H.P. Two cylinder 7 H.P., 8 H.P.
Send for Catalogue. Live Agents wanted.

CHANDLER-DUNLAP CO. Polson Bldg. SEATTLE, U. S. A.

TOPPAN BOATS

POWER DORIES, GOV. MODEL LAUNCHES, ROWING
AND SAILING DORIES AND SKIFFS.

Write for full information and prices.

TOPPAN BOAT MFG. CO.

Medford, Mass., Dept. M.

And the Soldiers Called Her Slum

(Continued from page 29)

patch-work craft, nine miles being covered in less than an hour without serious mishap, except that the reversing device failed to function and merely resulted in several back-fires from the engine. But the mill blacksmith soon righted this fault, and the boat was christened Slum and put into commission on the rafting run. The name was an abbreviation of slumgullion, known to every army man, and was a testimonial to the fact that like the soldier's stew this boat was made out of several ingredients.

A raft containing 500 logs is quite a burden for any craft, particularly when they are nearly as heavy as the water in which they float and consequently always on the verge of sinking. The shape of such rafts precludes the possibility of making speed with them, for they cover the water like a giant turtle, but two trips were made regularly, one in early morning, to take such logs as had come down the river during the night, and the other late in the afternoon, to carry away the day's run. Thus 1,000 logs were taken to mill each day, which allowed for a slight surplus to tide the saws over days of ill luck. And such days came now and again, for when the wind whistled down between the encircling dunes and swept across the lake, a raft would sometimes break away from its motive power and drift into some sandbar before the boatmen could capture it.

No one knows what her cost was, for her hull was borrowed, and the work of design and installation was done by officers and soldiers. Her engine cost about \$300, a war-time price. But she did her duty, and finally was bid upon by a French lumberman who offered to assume all risks of finding the man who owned her shell. Whether he obtained her or not is known only to the people who remained overseas.

The Homing Pigeons Are Returning

(Continued from page 60)

planade Ave.; H. J. Stouse, 633 Esplanade Ave.; H. H. Stream, 5350 Prytania St.; Leo C. Sutter, 1725 Calliope St.; Dudley Taylor, 1456 Camp St.; G. H. A. Thomas, 1226 First St.; G. A. Torendle, 1018 State St.; Hugh E. Vincent, 10 Audubon Place; Joseph I. Wagner, 1129 Burgundy St.; J. J. Washington, 1108 General Pershing St.; J. R. Watson, 1622 Sixth St.; John Weckerling, Meatierie Ridge; Dr. J. D. Weis, 1428 Jackson Ave.; M. B. Wheeler, 519 Audubon St.; J. M. White, 223 St. Charles St.; R. Emmett White, 2726 Prytania St.; Jack White, 4 Richmond Place; Dr. R. L. Whitmire, 3425 St. Charles Ave.; Nelson Whitney, 579 Broadway St.; J. C. Williams, St. Charles and Lowerline St.; E. E. Wood, Jr., 1515 Dufossat St.; Nelson Woody, Hibernia Bldg.; A. W. Woolfolk, 11 Audubon Place; P. St. Amand Young, 2639 Napoleon Ave.; C. R. Davis, 1015 N. Dorgenois St.; G. J. Forstall, 927 Alvar St.; Michael Irwin, Jr., 729 Second St.; Leon Irwin, Jr., 1305 Carrollton Ave.; John Dane, 4432 Laurel St.; S. L. Dickerson, 308 Camp St.; J. D. Ewing, Shreveport, La.; Albert Start, Madisonville, La.; G. A. Diassellis, 5500 Chestnut St.; Henri Howard, 2513 St. Charles Ave.; Lucian Lessene, 10 Audubon Place; C. McKinney, 1323 Octavia St.

What I've Found Out About Advertising To Boating People

By C. B. McCUAIG

(Advertising Counsel for The Buffalo Gasolene Motor Co.)

We don't leave much to chance here at the home of Buffalo Engines—not even advertising.

We buy advertising just as we buy steel or coal or castings—because we expect it to be some good to us.

If we had to trust to a sort of happy-go-lucky casting of bread upon the waters we would not advertise.

Before we spend a dollar we want to be at least reasonably sure it is going to return us a dollar and five cents, otherwise it would be better to put it into Liberty Bonds.

So we have a system for checking up the concrete returns which our advertising brings us—not inquiries alone but *results*. Inquiries have no value unless you are able to turn them into sales, that's the only place you get your money back.

We keep a sort of life history of each inquiry on a filing card—how it originated, whether it resulted in a sale and if not, why. In this way we have a pretty good line on what we are doing.

And this system shows us many things:

One is that advertising is not a nickle in the slot machine where you can put your money in at one end and get business out of the other. I would not advise anyone to use a single page of advertising run once and expect it to pay—it is the constant presentation of the same old truth in new dress month after month that brings home the bacon.

Now about MoToR BoatinG as a result getter:

We have been using space in MoToR BoatinG for more than ten years. It used to be half page space, way back in the book. Now it is full page preferred position costing three times what our old space cost us. Why?

Simply because the little cards tell us MoToR BoatinG space is good stuff to invest in—that it brings inquiries and with us inquiries mean sales.

This is due largely to the fact that MoToR BoatinG has a way of hitting people who have money to spend, they seem to run to boats of the larger sizes if one may judge from the cards. And they are a good class of inquiries—few "kids" or "curiosity seekers". This means a lot when every inquiry costs you a dollar or two to follow up.

And MoToR BoatinG inquiries are not only good but they are cheap. I have just finished figuring up the score for May and I find that MoToR BoatinG leads when you put it on a basis of cost per inquiry.

One dollar and eighty-four cents apiece isn't bad for marine engine inquiries, is it?

That's another reason why we have never missed using full page space in a single number of MoToR BoatinG for the last six years.

MoToR BoatinG is an essential factor in every successful marine advertising campaign



When writing to advertisers please mention MoToR BOATING, the National Magazine of Motor Boating

"SIMPL-EZY"

TRADE MARK
GALVANIZED PRESSURE
PUMP

A GALVANIZED FORCE
PUMP WITH THE AD-
VANTAGES OF AN EX-
PENSIVE BRASS
PUMP.

For
Boatmen
Fishermen
Contractors
Plumbers
and
many
others.



Made in the
following sizes:

Size	Capacity	Price
1 1/2" x 24"	2 Qts.	\$2.75 ea.
1 3/4" x 24"	3 Qts.	3.00 ea.
1 7/8" x 30"	4 Qts.	3.00 ea.
2" x 24"	4 1/2 Qts.	3.25 ea.
2 1/8" x 30"	6 Qts.	3.50 ea.
2 3/8" x 30"	8 Qts.	3.75 ea.

Satisfaction Guaranteed

The "SIMPL-EZY" Pump is indispensable where the transfer of liquids is necessary. Made from Heavy Gauge Galvanized Iron. Has a tapered spout for hose attachment and four times the capacity of the ordinary pump.

One operation will convince you of its merit.

Your Dealer or

BURROUGHS TOOL CO., Inc.
87 Warren Street New York City, U. S. A.

Gear Pulling Made Easy



Says the Master Mechanic. The Grab Automatic Grip Puller is a One-Man Puller—Quick-acting, strong and simple in the extreme. May be locked in any desired position. A combination of two or three arms. Heavy Duty size capacity 1" to 1 1/2"—Junior size capacity 1" to 1". Two sets of jaws furnished with each size.

Ten Days' Trial If your dealer or jobber does not have them we will send you one. Try it ten days. If not satisfactory, return to us and we will refund your money. We also make the Grab Him Yawl.

THE GRAB CO., 225 State Street, BOSTON

CHUTE'S PLANKING & DECKING CLAMP



An indestructible time saving device for boat-builders. Having no screws or chains, is quickly adjusted to timbers and carlins 1" to 3" inclusive. This clamp is used without injury to timbers, the sliding block having ample surface and provided with teeth 1-16" deep. May be used up or down and at turn of bilge.

Sent on approval on receipt of price. Price \$3.00 each—Subject to discount on one dozen or more.

RICHARD B. CHUTE, Jr.
Boatbuilder Huntington, L. I., N. Y.

Six Prize Packages

(Continued from page 19)

double-cylinder, two-cycle engine. This machine was experimented with for a season or two, during which time the original generator valves were discarded and a carburetor designed, patterns made and the parts machined on a foot-power lathe. This carburetor proved entirely satisfactory, and six or seven were built altogether. Some are still in service. I don't know that there is much profit in making carburetors by hand, but I learned something about them by so doing and the experience was interesting.

"Studying the engine problem a little more, I soon became convinced that I had accomplished about all that was possible with the two-cycle engine and that the only way to get a real engine was to build a four-cycle engine. This time I started at the beginning, making the drawings and patterns and then building the engine. This took quite a long time to finish, working only spare time, and there was a good deal of speculation among the boys as to whether it would run. There was considerable criticism regarding the time spent on the cams and timing the valves, I remember, but when it was finished it did run and has been running for quite a few seasons. This machine lacks some of the refinements of the latest models, but so far as pulling is concerned, it's some job to find an engine of the same bore and stroke that will swing a larger wheel.

"Just why boating is my hobby, and why I continue in the game, I really don't know. Probably because I've never found another sport that seems so interesting."

F. T. L. are the initials under which we have disguised that breezy individual, F. T. Lander, of 17 Battery Place, New York City, a man who withal his breezy manner and his rugged-looking countenance is still a dreamer, where boats are concerned at least. For Mr. Lander frankly admits that he makes plans of dream-boats, but he learns things about the craft in that way. Here is Lander's own opinion of Lander, in Lander's own inimitable manner:

"If you weren't afraid of being caught by your acquaintances, you could give a pedigree about yourself that would make Josh Slocum look like a landlubber. You could even go so far as to make it appear that the rank of admiral would be an easy one for you to fill, and no doubt you could get away with it, too.

"But your friends know better; they would have the laugh on you. As it is, they surely must wonder, just as you do, how it is possible, when by some lucky chance you get your story accepted by MoToR Boating. So, therefore, not daring to risk the embellishments, you find it difficult to comply with the editor's request even to send in a few remarks about your boating experiences.

"For there haven't been any experiences worth mentioning. It's just been a case of owning a miscellaneous collection of hookers, dating back to the early nineties, when the first venture was launched in the form of a canvas canoe with leg-o-mutton sails. Next was a flat-bottom cat-boat, and so on to a couple of round-bottom craft. Then motor boats became the fashion, and it went from one to another, as is the usual custom in the boating game. At one time it was a creek-boat on the upper Hackensack, in the days when the fishing and duck shooting were fine there.

"There was one stage of the game when to be a real live ship-carpenter was the height of our ambition; so a job was ob-

(Continued on page 68)

—LEECE— ELECTRIC STARTING-LIGHTING SYSTEM NEVILLE

OUTFITS OF QUALITY

A
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ALWAYS READY



DAY OR NIGHT

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MANUFACTURED BY

THE LEECE-NEVILLE COMPANY
CLEVELAND, OHIO



Anderson Engines Are Good Engines

(ask any owner)

4 to 100 H. P.

Write for description and prices.

ANDERSON ENGINE CO.
4032 N. Rockwell St., Chicago.

CUT PRICE CATALOGUE SENT FREE



Any—and Everything
for a Motor Boat

E. J. WILLIS CO.
85 Chambers Street, New York

YOU CAN'T DRIVE SPIKES WITH A TACK HAMMER

**Neither can you expect heavy-duty
service from a high-speed engine**

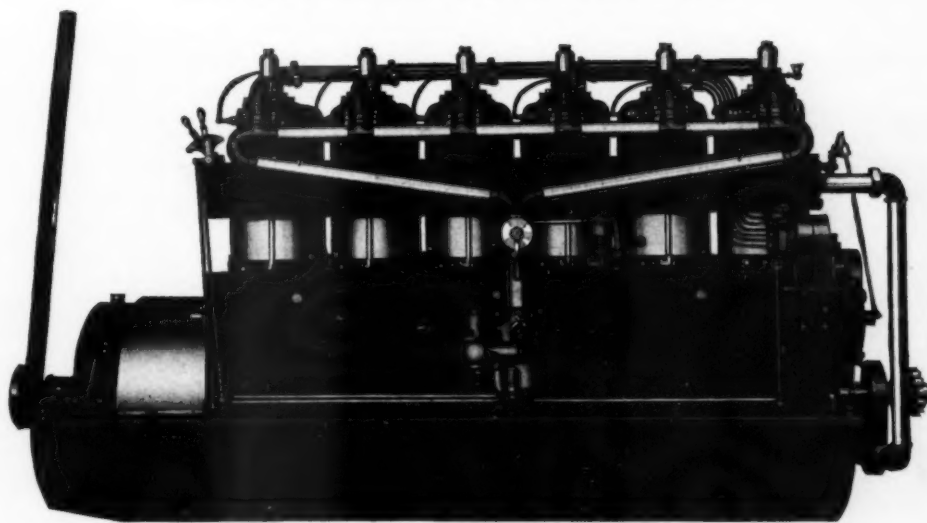
Can it be considered efficient then, to install a high-speed engine, designed to give best service at, say 1200 R.P.M., in a heavy boat, where the propeller cannot be operated efficiently at over 500 R.P.M.?

Murray & Tregurtha Heavy-Duty Engines are, as the name implies, heavy, staunchly built, and guaranteed to smoothly deliver maximum power at 300-500 R.P.M., with minimum consumption of fuel and lubricants, and a minimum of wear and tear on the machine.

They are ideal power plants for heavy cruisers and work-boats.

Send for Bulletin E

**Murray & Tregurtha Corp.
Atlantic, Mass.**



MODEL E-6, 6 1/4" X 8", 60 H.P.



Strength—Lightness Power—Speed

ARE THE FUNDAMENTAL PRINCIPLES OF THE

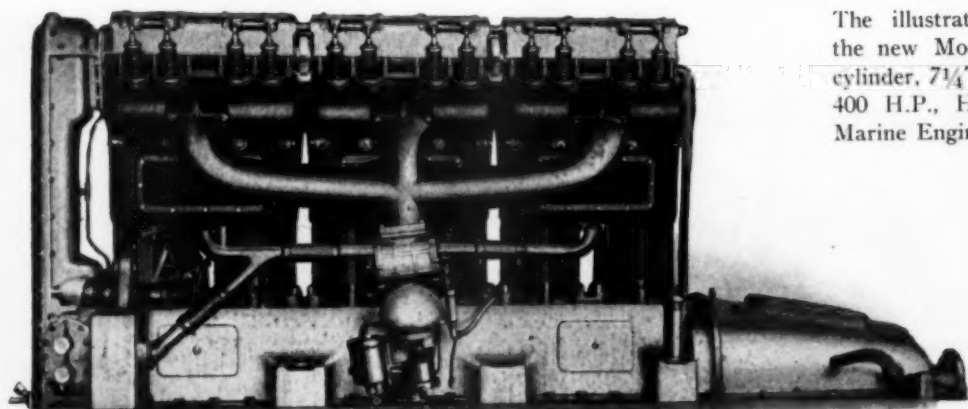
M. & T. Model J-6

It has no weak points!

Delivering a power greater than hitherto obtained from any single marine gasoline engine of the same cylinder capacity and weight, smoothly, steadily, hour after hour. It is a triumph of modern automotive engineering. Built in our new, modernly equipped plant by mechanics who have spent years in our service. Men who have become thoroughly imbued with the spirit that stands behind our trademark: "Only the very finest engine is good enough to bear the M. & T. seal of approval."

May we send a catalog?

Murray & Tregurtha Corp.
Atlantic, Mass.



The illustration shows the new Model J-6, 6-cylinder, 7 1/4" x 9", 300-400 H.P., High Speed Marine Engine.

RADIO ANNOUNCEMENT

WONDERFUL ADVANCES were made in RADIO COMMUNICATION during the WAR — and greater achievements may be expected.

In order to provide adequate facilities for the

SOLUTION OF RADIO PROBLEMS and the MANUFACTURE OF COMMERCIAL APPARATUS

we have established a Radio Research Laboratory in New York, with a staff of well known engineers. Here, also, we have our Executive and Sales Offices and Factory.

CUTTING & WASHINGTON RADIO CORPORATION

Laboratory, Main Office & Factory

6 and 8 West 48th Street

New York, N. Y.

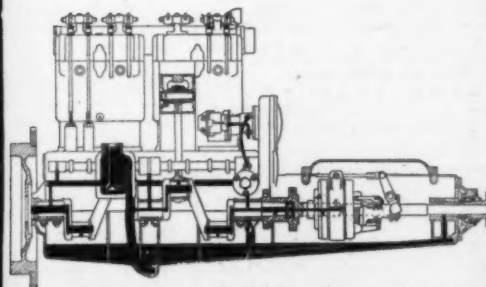
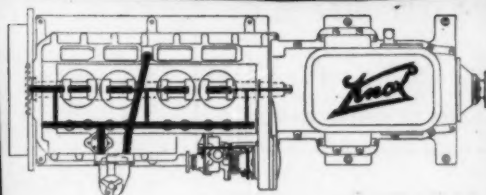


MOTORS

A better motor for cruisers, motor boats and runabouts. A source of unfading power, regardless of season or demands.



KNOX MOTORS ASSOCIATES
Springfield Mass



The above diagram of the oiling system of the Knox marine motor shows all the bearings including the reverse gear with the rear bearing and propeller shaft thrust bearing.

You will note that there is also pressure feed through the water pump bearing and, therefore no grease cups on the motor whatsoever, more of Knox simplicity and accessibility.

Regal Marine Engines

*Have 18 years successful
building behind them*



The line is very complete, sizes ranging from 2 H.P. to 50 H.P. The engines can be equipped with any kind of ignition desired and are constructed to burn gasoline, kerosene or distillate.

Write for catalog and prices.

**REGAL GASOLINE
ENGINE COMPANY**

74 Pearl Street
COLDWATER - MICHIGAN

WICKER-KRAFT YACHT FURNITURE

Used on the finest boats. Regularly supplied by highest grade boat builders. Wicker-Kraft Chairs, fitted with life belts, are an original Wicker-Kraft idea. Write for illustrated catalog.

WICKER-KRAFT CO., Newburgh, N. Y.

DELCO-LIGHT MARINE SET

A complete electric light and power plant— independent of the boat engine. Runs on kerosene. Compact, easily installed; 70,000 satisfied users. Write for catalog.

THE DOMESTIC ENGINEERING CO.,
DAYTON, OHIO.

BURGER BOATS COMMERCIAL AND PLEASURE

If you plan to build a new boat this spring it will pay you to get our prices. We are prepared to furnish any boat up to 200 feet for all purposes and we guarantee satisfaction. Write for information.

BURGER BOAT CO.
Manitowoc, Wisconsin

IF YOU WANT

to know anything about boats or boating, about the marine market or the marine industry, write the editor of MoToR BoatinG for information.

MoToR BoatinG is the leading magazine of the marine field—leading in circulation and advertising value as well as in authority and interest. It exists for the service it can render to boat owners and to members of this industry. Let it be of service to you.

MoToR BoatinG

119 West 40th St. New York

Six Prize Packages

(Continued from page 64)

tained in Potter's shipyard near Nyack. Things went well while working at this interesting trade, until one day, when getting out the keel for an oyster sloop, the adz slipped and knocked off a chip from our big toe—the one on the port mud hook. So we also had to knock off.

"But a whole lot can be learned at the wood butcher's trade, and things can be learned by drawing plans of dream-boats, too. There were four which really materialized, and right here is a feature of the boating game that is good sport. To see your own ideas develop into something tangible. If a fellow kept at this long enough—that is, designed, built and sailed his own boats, he ought in time turn out quite a respectable craft. And while there has been fun in all this, the best fun of all is in a cruise. For it's the small, slow-speed, one-man cruiser that keeps things going in the boating game."

A. O. G., who is in reality Allan O. Gould, of Portland, Me., says that merely to be born and live on the shores of beautiful Casco Bay should of itself be sufficient to induce a love of the sea, and so Mr. Gould is an enthusiast of enthusiasts.

"Add to that the possession of a father whose lifelong joy has been boating, and you must admit that my fondness for the water came to me honestly," he says. "If he did not own a boat on October 12, 1872, my father surely must have acquired one soon after that rather distant date, for earliest memories include always some white-winged sloop of modest size and the names of Tempus, Zero, Nun and Scalpel associate themselves with many trips over the sparkling waters of the bay under swelling canvas, long before gasoline came to banish sail from the pleasure fleet of Portland Harbor.

"During school days the wharves were ever the mecca of our leisure hours. The salt-laden bark from Trepani, the newest Gloucesterman, the British freighters which docked at the Grand Trunk ocean sheds when the ice-bound St. Lawrence for six months barred them from their summer port of Montreal, each of these and many another visitor from ports near or far passed in review before the eyes of we youthful critics. In time we came to know them all, from dory to battleship.

"My brother Paul and I, while in the grammar school, acquired a 16-foot row-boat with a centerboard, and wonderful times we had first with the oars and later with a much abbreviated yawl-rig, spending our long vacation days knocking about the harbor and upper bay.

"While attending high school Will Hand came to live across the street. His father, Lieut. Hand, was then in command of the revenue cutter making her headquarters at this port. My brother and Will at once became inseparable friends. I was a trifle older than they, but was, nevertheless, keenly interested in Will's ideas of shallow-draft centerboard racing sloops, which he sketched on brown paper during the winter evenings on our sitting-room table. Our own favorites had always been deep-keel craft of the English cutter type. At that time no one quite grasped the idea that for high speeds the hull must glide over the water rather than plow through it. Willie Hand, as we called him, was even then working along the proper lines. We little thought that he was laying the foundation for a remarkably successful career as a naval architect.

"School days passed and I found employment in the drafting room of a local

engineering works. Our windows overlooked the harbor and the trim Hampton boats of the offshore fishing fleet, with their high-peaked sprit sails, added a picturesque touch to the ever-changing marine panorama, as each afternoon they made their way homeward from the Portland fish piers after selling their catch. Sometimes a score would be in sight at one time, bound for islands down the bay where their owners would make their homes. Today every boat in the fleet is motor driven, although the Hampton type is still in evidence.

"Being situated so that every craft that entered or left port passed in plain sight effectually maintained my love for boats and boating. Brief cruises to the eastward yielded tantalizing glimpses of the wonderful cruising ground situated at our very elbow. As I helped friends who were planning or building or remodeling boats, the idea of a boat of my own which would take me through the island labyrinths which fringe our rock-bound fir-clad Maine coast was ever in my mind.

"After twelve years spent at the drawing board, in 1902 I entered the stationery business with my present firm. The advent of gasoline about this time found in me a ready convert. The first vacation after motor-driven craft became noticeable about the bay, I chartered a runabout. Kathryn, and on this rather temperamental craft we absorbed our first practical knowledge of the habits of the species. I say 'we' advisedly, for I had married the year before, and of course my wife was the ship's first officer. About the time our vessel's charter expired, we felt that we had mastered the rudiments of the science and could (usually) start and stop our little craft. We also came to the conclusion that there was nothing equal to motor boating for out-of-door enjoyment. This, I may add, is still our opinion.

"When the Portland Power Boat Association was formed, I became a member and held my membership in the organization for several years. I have, however, long regarded the Portland Yacht Club as my home club, and my father at the time of his death was the oldest member of this veteran organization. In the spring of 1906 the Portland Shipbuilding Company launched for me a 27-foot round-sided dory with a 5-h.p. Wolverine engine. She was a good-looking craft called Osprey, and was exceptionally well built. My wife and I used her about the bay for two years, finding her able in any weather. Seaworthiness and durability must always be cardinal virtues in motor craft, and mere smooth water speed has never greatly attracted me. Osprey when last seen was in the fishing business and seemed fit for years of usefulness.

"Some time later my father purchased a converted sailboat, and after having a raised deck substituted for the original trunk cabin at Jacob's boat shop, together with certain other improvements, he christened her Edie, and we used her constantly for several years. She was one of the Portland Yacht Club Power Squadron while that body existed, and her picture hangs in the clubhouse among those of the boats which made up the gold medal squadron during the 1915 maneuvers. The power squadron movement appealed to me very strongly, and for several years I served as treasurer of the local squadron.

"Feeling the desire for a larger and better boat, I planned Spook, and late in

(Continued on page 70)



"The Motor That Crossed the Atlantic"



"GADABOUT"

A new standardized 25 ft. raised deck runabout designed by Mr. Wm. H. Hand, Jr. of New Bedford for Mr. C. C. Thomson of Mobile, Ala. Like all of Mr. Hand's creations, comfort, appointments, "pep" and speed are combined with real sea worthiness.

The power plant is the new model D-4, 40-50 H.P. high speed SCRIPPS with two unit starting and lighting, which delivers a safe and conservative 21 miles under ordinary conditions. The performance of the motor was signally pleasing both to owner and designer. To use Mr. Hand's description the action of the motor was most pleasing—it seemed to be very smooth, flexible and quiet.

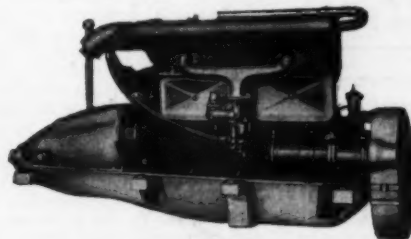
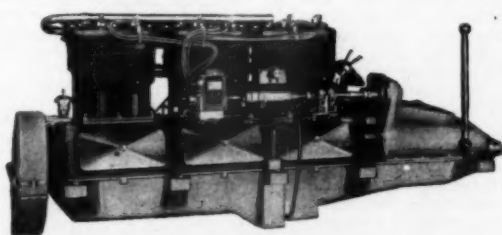
And like all SCRIPPS engines of the past this engine retains the SCRIPPS characteristic of "built-in service." This means mental comfort as well as physical comfort. It means the assurance that nothing will go wrong in motor or equipment.

The SCRIPPS line is usually complete, including power plants for almost every marine purpose from 10-75 H.P.—all four cycle in two, four and six cylinders, medium duty or high speed—gasoline or kerosene equipment. Quick deliveries for that "last minute" installation.

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Six Prize Packages

(Continued from page 68)

July, 1917, this 36-footer was launched from Reed's shop, Boothby Harbor. Since her launching she has more than fulfilled my expectations. War-time restrictions and the exactions of business have lately prevented any extended cruising. Last season we used the boat very little, although we kept her in commission all summer and she was one of the very few boats moored off the Yacht Club. My wife, happily, continues to be interested in boating, and the boy, now fifteen, is enthusiastic and a great help in fitting out and running the boat. We are all looking forward to a good boating season and hope to get away on a two weeks' cruise to the eastward sometime during the summer.

"For a number of years I have enjoyed writing for MoToR Boating, and the Monthly Prize Contest in Question and Answers has always interested me. I doubt if a happier idea was ever hit upon for promoting discussions and keeping up interest among boat owners and enthusiasts. My boating experiences have, as a rule, contained few thrills, and I recall but one occasion when I felt doubt as to getting home safely. This occasion was a good many years ago, when a small party of us, all vacationists, sailed up to Portland from one of the South Harpswell hotels in a 20-foot open Hampton boat before the days of motors. Attempting to return that afternoon we were forced offshore by the increasing gale, and after a trying all-night experience at sea we finally succeeded in beaching the boat at Willard Beach in the cold gray dawn of the morning after. We obtained shelter from the downpour of rain in a fisherman's house near the shore. Our boat was old, and during the ordeal she was battered and strained beyond repair. I remember that the Boston and New York steamers were held in port that night on account of the storm, and two other coastwise steamers put in for shelter and lay at anchor in the ship channel when we started for town in the morning."

J. W. K., whom we will admit is none other than the ardent yachtsman, sailorman, and motor boatman, Joseph W. Keefe, Jr., of Jersey City, N. J., is rather a reticent sort of chap, and it was extremely hard for us to get much out of Joe about his career, but we do know that he is still in his early twenties and has been a reader of and contributor to MoToR Boating since 1913. Joe, as Mr. Keefe is known to his friends, is a live motor boat "bug," agreeing with the man who said that motor boating is a sport fit for presidents. Like many real "bugs," he has a horror of automobiles and things on wheels generally, being of the opinion that, for the effort and money expended, pleasure boating pays bigger dividends in health-promoting recreation than all other sports combined.

Joe has two motor boats, a 45 x 12-foot cruiser, Kathryn-K, and a 31-foot Seabright dory, Waljo. Kathryn-K is powered with a heavy-duty Sterling engine, and embodies all of the comforts of the real cruiser. She has never yet turned back because of foul weather. many a bad storm has been encountered off Sandy Hook and Seabright with Skipper Joe at the wheel, but the unfailing power plant and the staunch, stiff boat have withstood all without mishap. Practically all of the work on both boats is done by the skipper, and he says that he has found the timely topics discussed in the pages of MoToR Boating of inestimable aid in keeping maintenance and operating expenses at a minimum. (To Be Continued)

Advertising Index will be found on page 100

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Increases Revolutions. No Back Pressure!

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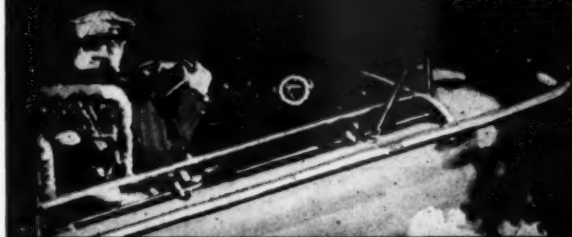
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	\$135.00	\$165.00	\$200.00	\$110.00	\$90.00		\$150.00	\$130.00	\$240.00	\$160.00

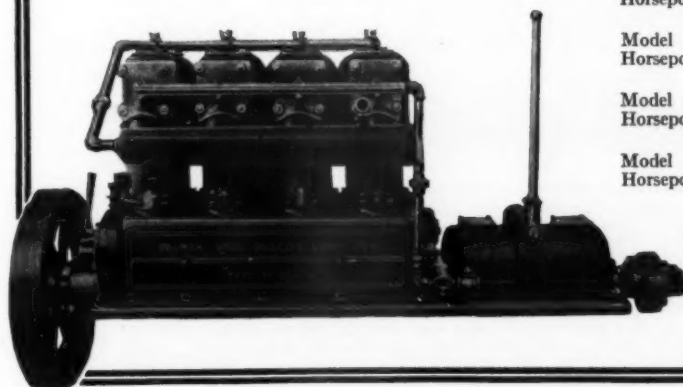
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Horsepower ..	18-20	5-6	10-12	15-18	20-24
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Horsepower ..	16-18	24-26	32-35	50-60	
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Horsepower ..	20-25	30-35	45-50	75-80	
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For Prices of Equipment send for Catalog and Price List

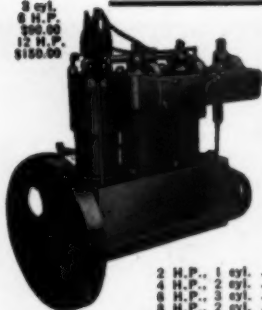
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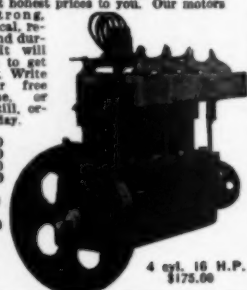
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Best for Yachts, Boat-
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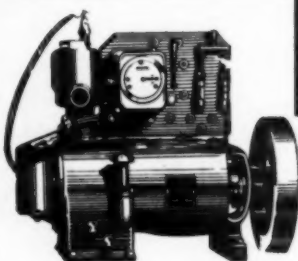
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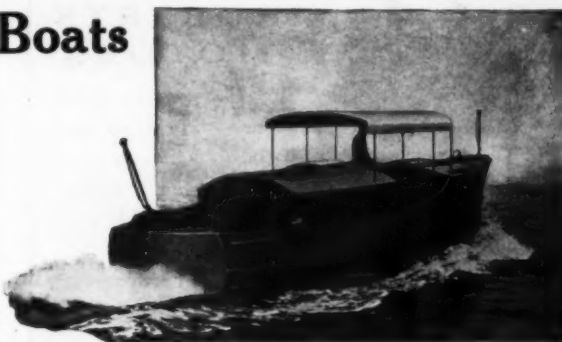
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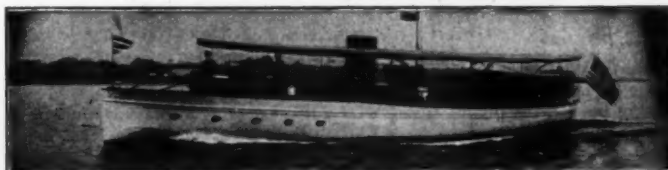
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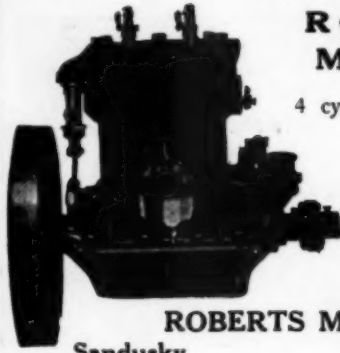
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Quartered Oak Case, or Mahogany Case.

Lining and Fixtures Nickel-plated. Porcelain Bowl. Mahogany or Quartered Oak Case.

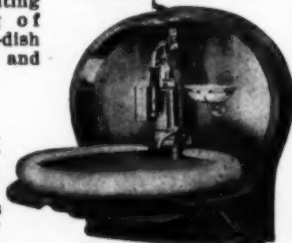


Fig. 1393

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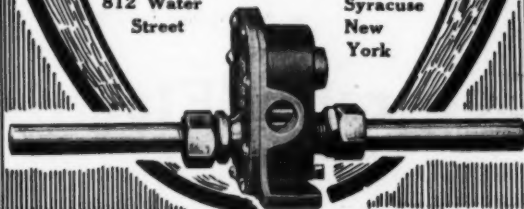
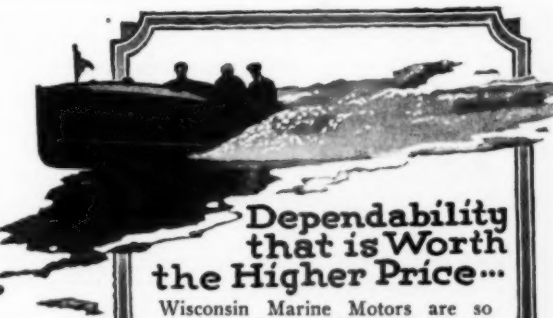
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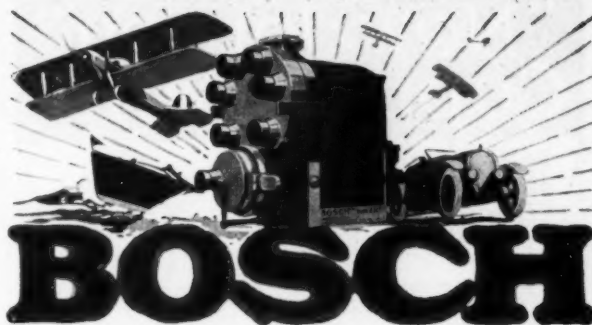
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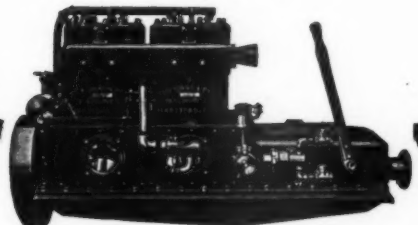
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NELSON INSTRUMENT COMPANY

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Compass Errors Simplified

(Continued from page 20)

the relation between the angles under discussion, works like a charm until we forget the order of the letters, and then it is worse than useless; hence the four diagrams accompanying this dissertation. Beside each are tabulated the corresponding values of the angles pictured. Any one of the calculations may be performed either forward or backward, depending on which angles are known and which are required.

Two illustrations of this graphical method follow:

(1) Assume the compass course to be $6\frac{1}{2}$ degrees (N. E. x. E. $\frac{1}{2}$ E.); the deviation on that course $5\frac{1}{2}$ degrees ($\frac{1}{2}$ point) west, and the variation in the locality (Long Island Sound) to be $11\frac{1}{4}$ degrees (1 point) west. A rough plan of the boat is first sketched, and in it a large but perfectly plain circle to represent its compass. Then, starting from the lubber line, there is laid off toward the left (in a direction contrary to that in which the hands of a clock move) $61\frac{1}{4}$ degrees ($5\frac{1}{2}$ points), giving the north to which the vessel's compass points (C). The other north points (T and M) are next sketched in their proper positions with respect to this one, and all that then remains of the problem of finding the magnetic course and the true course is a simple addition of angles. See Fig. 2.

(2) Assume that, in the vicinity of New Orleans, where the variation is $5\frac{1}{2}$ degrees ($\frac{1}{2}$ point) east, the true course is $309\frac{3}{8}$ degrees (N.W. $\frac{1}{2}$ W.) and that the deviation on that course is known to be 2 points east. The compass course is determined as follows: After having made the sketch of the boat, with a circle to represent the compass, as in (1), lay off, again toward the left from the lubber line, $309\frac{3}{8}$ degrees ($27\frac{1}{2}$ points), and locate point T, which is true north. From T lay off the easterly variation and fix M, and then the easterly deviation which fixes C. The rest is simple arithmetic. See Fig. 3.

A diagram like Fig. 1 might result in the vicinity of Norfolk, and one like Fig. 4 off the coast of Nova Scotia, if the deviation of the vessel's compass should chance to agree with the values here assumed. In any case the problem is more than half solved when the sketch has been properly drawn. After the first north point has been located, it will be found easier to locate the others correctly if the sketch is turned around so that north is at the top.

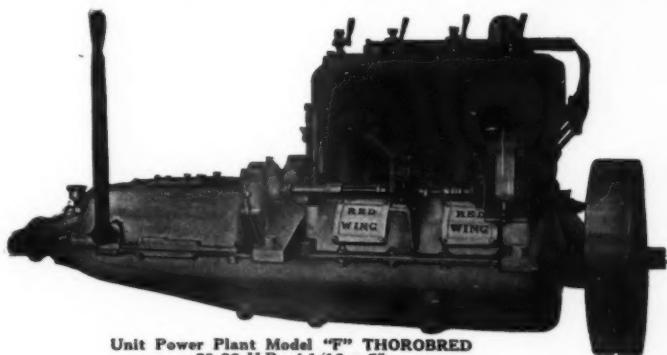
Launching Airplane from Motor Craft

(Continued from page 11)

planed nicely on only part throttle, though she was carrying a 5-ton airplane on deck. Following this the Caproni engines were shut down, and the boat continued planing on part throttle, developing a cruising speed in excess of 30 knots with a moderate load on the Sled's engines.

In this connection it is worth noting that the Murray & Tregurtha engines used are, as to bore and stroke, the largest high-speed engines built. The bore being $7\frac{1}{4}$ inches and the stroke 9 inches. As contrary to usual practice as this engine is, she is still capable of running for long periods at high revolutions without developing the defects that the theorist expects from large-bore high-speed engines. Following the trials with the Caproni, during which the sled had to make some fairly extended runs, and before the arrangements were ready for releasing the plane, a Curtis J-N type machine was substituted for preliminary flight trials, and it is this machine which is shown in the illustrations.

Witnesses of the first launching of an airplane from a Sea Sled state that the Sled's speed was so high that the plane jumped very rapidly on release and went up practically vertically over the Sled.



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How to Pick Out a Motor Boat

(Continued from page 9)

steering wheel and all control levers mounted on an instrument board inclined much like the dash of a car. This makes a boat of aristocratic appearance and the cockpit aft is kept as clean as the tonneau of the car. And very many who own large cruising yachts also own the handy runabout, which does not require a paid mechanic to run and the up-keep is so low that the boat can be used as a tender for the larger boat and found useful under almost every condition where a boat can well be used.

The fast runabout is now one of the recognized types of motor boats which have become standardized through the development of many years experience, and all the larger builders offer several well-designed boats of this class in several sizes, and there are a number of boat builders who specialize in runabouts exclusively. Owing to the fact that this form of boat has proven itself to be the most popular, the purchaser is offered a greater selection to choose from than in other designs of boats. Whenever there is an attractive body of navigable water—on river, lake or bay—there the motor runabout will be found. In purchasing a boat of this type one has as many models to choose from as when purchasing a motor car, and you can select a 40-foot runabout *De Luxe* with a twin-six engine, giving a guaranteed speed of some 40-miles an hour and go down the scale to the natty little 18-foot runabout, equally desirable for running about on little pleasure spins and for the owner's convenience in reaching his cruising yacht.

The 30-foot runabout will very likely meet the requirements of the largest number of persons, because it is big enough to comfortably seat a party of seven or eight, and small enough to be easily handled, and economical to operate. While the hydroplane form of hull is sometimes preferred for the runabout, the V-type design is the general favorite, and a boat with a beam of about 6 feet and a draft not over 2 feet 4 inches, will satisfy all who do not want racing speed. In a boat of this length the speed may vary considerably. With a six-cylinder engine of about 125 h.p. a guaranteed speed of 34 miles an hour is easily attained. If a more moderate speed will satisfy the owner, the runabout may be powered with a four-cylinder marine engine which will easily develop a guaranteed speed of 15 miles an hour.

Should a 30-footer be a larger boat than you happen to want to own, it is a simple matter to find just the boat you desire in lengths scaling a foot less all the way down to the trim dinky runabout of 18 feet. The runabout of 25 feet is a particularly good size, and many will prefer it to the larger craft. This length is the most popular boat with women who prefer to run their own craft, and the young folks can handle it easily also. A boat of this length with a beam of about 5 feet 9 inches will comfortably seat four or five in the cockpit, and with a four-cylinder 50 h.p. engine will give a speed of about 24 miles an hour, and about 20 miles an hour with 40 h.p. engine. And you can easily own a still smaller and more inexpensive runabout by choosing a 20-footer equipped with a four-cylinder four-cycle motor of 10 h.p., which will easily give you a speed of 12 miles an hour.

This brief summary of some of the good points of the runabout types now built in stock models by many reliable companies will indicate how easily you can own a good boat of the most desirable size and at the price you wish to spend. The specifications of a runabout of any length will read about like this:

Construction—Hull built of white cedar planking on oak or elm frames and copper riveted. Decks, coaming; engine covers and interior trim of mahogany, with fastenings of brass or copper.

Motor—Gasoline marine engine, with electric starting outfit, Dual ignition with high-tension magneto, copper fuel tank set in copper drip pan, copper feed pipes, tobin bronze propeller shaft, bronze propeller wheel, power whistle outfit.

Installation—Starter, switchboard, gauges are located on bulkhead aft of motor. Controls to motor on quadrant on steering wheel as in the motor car. Reversing lever arranged near steersman's seat as in the automobile.

Standard Equipment—includes leather cushions, wicker chairs with cushions. Linoleum for cockpit floor. Regulation life preservers, according to seating capacity of boat. Brass sailing lights, chocks, and cleats. Cork-filled fenders. Folding anchor

(Continued on page 84)

Mathis-Built Houseboats



75-foot ALELA

above, built by us in 1914 for Mr. Albert Disston, for whose father, Mr. William Disston, we had created the new type houseboat when we built the Cocopomelo in 1909.

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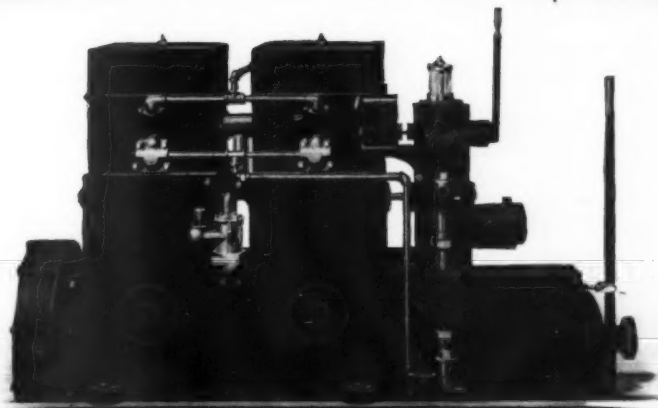
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MODEL D-F-IV—Port View

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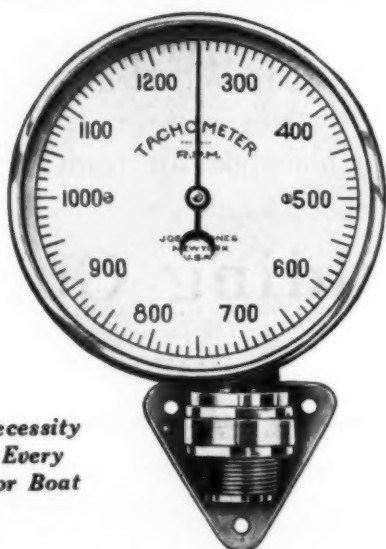
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NAVY DEPARTMENT
BUREAU OF STEAM ENGINEERING
WASHINGTON, D. C.

May 27, 1919

Refer to No. 419558-736-4DA
Gentlemen:—

In reply to your letter of May 19, 1919, the bureau advises that the flying boats NC-1, NC-3 and NC-4 were equipped with the Jones-Motrola Tachometers.

Very respectfully yours,

(Signed) O. W. KOESTER,
Acting Chief of Bureau.

Jones-Motrola, Inc.
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Over 10,000 Jones Tachometers have been supplied to the U. S. Army and Navy. You should have one on your boat. It insures greater economy and efficiency.

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JONES - MOTROLA, Inc.
29-33 West 35th Street, New York City

Piston Displacement and R.M.P. Must Be Considered

(Continued from page 22)

Experiments have shown that 85 pounds m.e.p. is a reasonable assumption for gasoline engines in good condition. If the engine is of the four-cylinder type the power impulses per revolution are equal to one-half the number of cylinders; if of the two-cycle type the power impulses per revolution are equal to the number of cylinders.

We may now derive our formula:

$$\text{Horsepower four-cycle engine} = \frac{\text{PLAN}}{33,000} = \frac{85 \times \text{stroke} \times \text{piston area} \times \text{r.p.m.} \times \frac{\text{No. cylinders}}{2}}{33,000 \times 12}$$

$$= \frac{\text{stroke (bore)}^2 \times \text{R.P.M.} \times \text{number cylinders}}{12,000}$$

For a two-cycle engine the denominator becomes 6,000. This formula gives 30.6 h.p. for a six-cylinder, four-cycle $3\frac{1}{2} \times 5$ engine at 1,000 r.p.m.

This formula shows that the power varies directly as the r.p.m., also that the capacity of an engine is measured by the piston displacement, and this is the only practical basis for comparing the capacity of one engine with another. Any formula which does not take into consideration the piston displacement and r.p.m. is absurd and of practically no value.

L. R. L., Columbus, O.

How to Choose and Purchase a Motor Boat

(Continued from page 82)

and rope cable. Bilge pump, fog horn, bell, flag pole, and sockets, bow and stern line, and funnel for filling tank. These are the essentials supplied with practically all high-grade runabouts, and the hood or one-man automobile top is usually supplied as an extra unless the boat is thus regularly equipped. While these specifications are merely given as a guide to the purchaser they practically cover the highest grade motor boats of this class. Some builders only construct the finest grade boat possible to make, while others build a second grade in many desirable designs. This is not an inferior craft in any way, only the material is of good quality, but not the finest selected, and the trim and general finish is more plain and less expensive. When one wishes to invest all of the purchase price in the boat and less in finish, this is a satisfactory kind of a boat to buy. (To be continued)

Starting Correctly to Build

(Continued from page 16)

of the keel and deadwood; indeed, few other woods approach it for durability and strength. Yellow pine is a fair substitute, for it is strong, but as its texture is soft, a metal should be applied along the bottom of a keel of this material to protect it against the hard knocks all keels get.

A keel of this type, because of the absence of a rabbet along its top edge, is called a Barefoot keel. This type is suitable for small-boat building and has many advantages.

There are three general types of keels—for small motor boats the first; the one I like best, shown herewith: the second; a type similar to this but having a real rabbet for its entire length with wood extending inboard as well as outboard; this type has the heels of the frames mortised into each side rather than crossing its top, as in the first type: the third, a flat bent keel which is simply a plank sprung to the shape of the boat's bottom following the rabbet line. Some builders cut a rabbet in each side or apply an equivalent in the form of an apron piece screwed to its top face, the apron projecting $\frac{3}{4}$ inch from each side, thus forming a rabbet. This third type is well suited to the building of craft of high speed where the propeller shaft is exposed and hangs in a metal strut aft. It is difficult to fit a wooden deadwood to keels of the latter kind and for this reason this type of construction is not suitable for cruising craft nor for craft which navigate in shallow waters.

I seem now to have laid out enough work for this month and so until August suzuzels in shall step overside and leave you to your own devices.

"America's Standard 4-Cylinder Engine" KERMATH

Boating Joys

You'll never know the full measure of the joys of boating if your craft is equipped with an inefficient power plant. There is little fun in messing around with a balky engine when all you should be doing is handling the wheel. Motor boating can be made a source of untold pleasure if you start right.

Now—before the season is under way — *equip your boat with the ever-reliable Kermath.* That is the first thing to do if your summer is to be the best you have ever known. Ask your friends about the merits of the Kermath—or better still, watch it perform the first time you have the opportunity. This is the best proof of all.

Kermath Engines are made for the men who require an engine that does not demand the constant attention of the man who runs the boat. They are fool-proof and trouble-proof—they are built to be started and then forgotten. Thousands of boatmen are using the Kermath, and all testify to its clean-cut, all-around goodness.

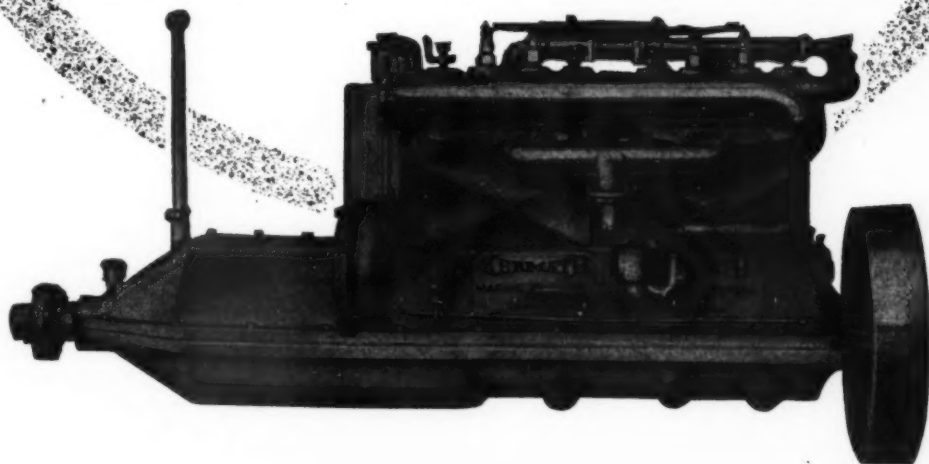
Our booklet will tell you some facts that prove our claims. Let us send it to you

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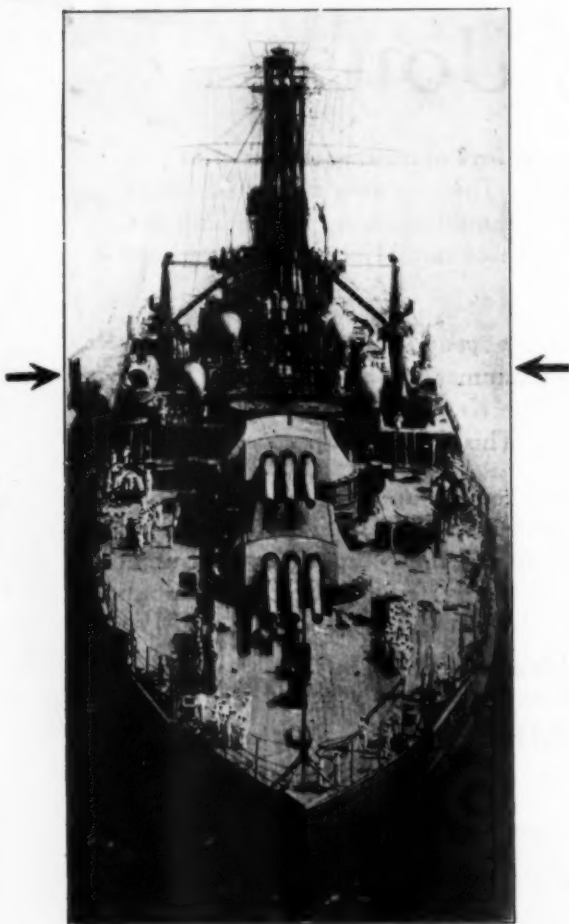


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The most compact and efficient marine power plant built. Full steam pressure raised in a few minutes.

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Hints on Keeping the Motor in Shape

(Continued from page 31)

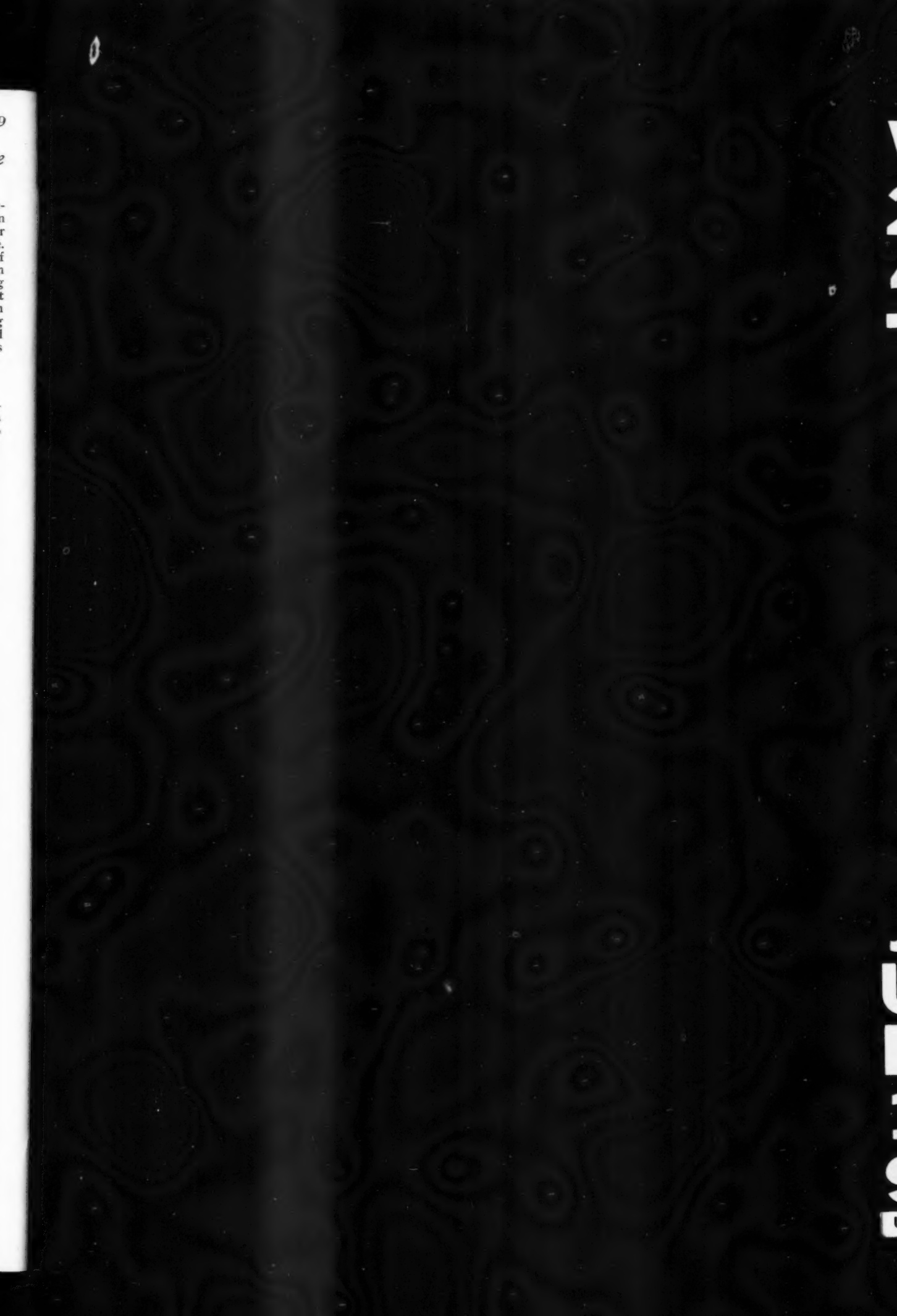
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Pistons should not be pushed into the head of the cylinders when the rings are on the piston when the engine is taken apart. If this is done the upper rings will open up or expand in the counter bore at the top of the stroke, with the result that you will not be able to get your piston out of the engine without breaking up the top ring. This can only be accomplished through the valve port, removing the valve cover plug No. H-13. When fitting piston rings to find out if they are worn, take the piston rings off of the pistons and then push the pistons down into the cylinder. The rings may then be put into the cylinder barrel and the piston drawn back by hand against the ring so that the ring is absolutely square all around in the cylinder barrel. With the ring in this position, a set of feeler gauges should be used and the space or gap in the ring at the opening should not exceed three or four thousandths. If the opening is greater than this it is advisable to get new piston rings.

General Adjustments

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MOTOR BOATING PRACTICAL HAND-BOOKS

Every motor boatman has long felt the need of a really complete and comprehensive library devoted to their favorite pastime—motor boating. One of the obstacles to the accomplishment of this important work was the difficulty in finding any one writer who could cover the field in its entirety. In presenting the new series of practical handbooks, MoToR BoatinG believes that the problem has been solved at last. These books are edited by Charles F. Chapman, M. E., the editor of MoToR BoatinG, and they are the results of months of untiring effort on his part, together with the best of thousands of suggestions sent to him by motor boatmen themselves.

Read What The New York Evening Sun says in concluding its splendid review of Motor Boating Practical Hand-Books

"Mr. Chapman embodies in his volumes an amount of information astonishing alike in its amount and in the accuracy of its detail. If there is anything pertaining to Motor Boats and their operation which he has omitted, it would take the most expert of boatmen to discover it. Yet perhaps there is one omission. Mr. Chapman might truthfully have said in his chapters on equipment that no motor boat would hereafter be complete without a set of MoToR BoatinG's Practical Series."

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Illustration of a newspaper clipping titled "Lure of the Motor Boat" from the SUN, SATURDAY, MAY 10, 1919. The clipping discusses the popularity of motor boating and mentions the MoToR BoatinG Practical Hand-Books.

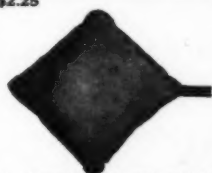
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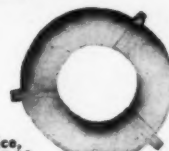
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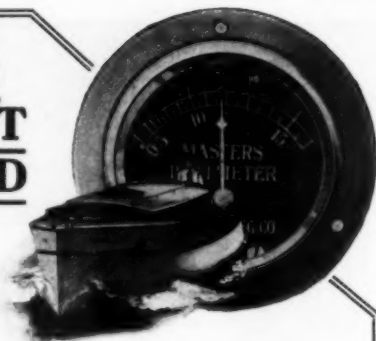
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JAS 43, 7/16-18
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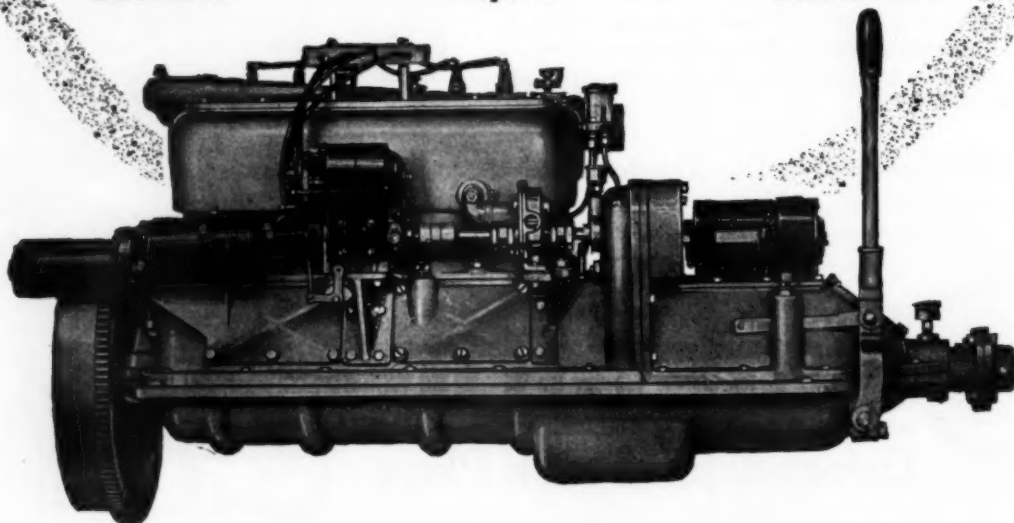
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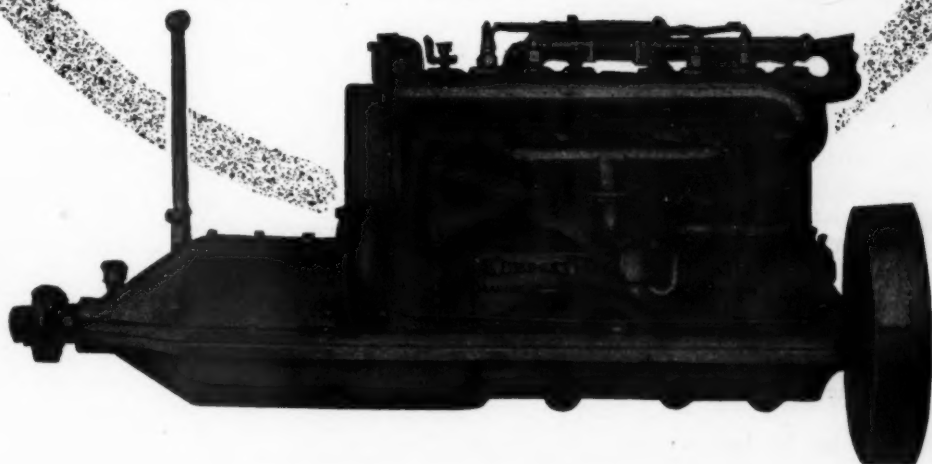
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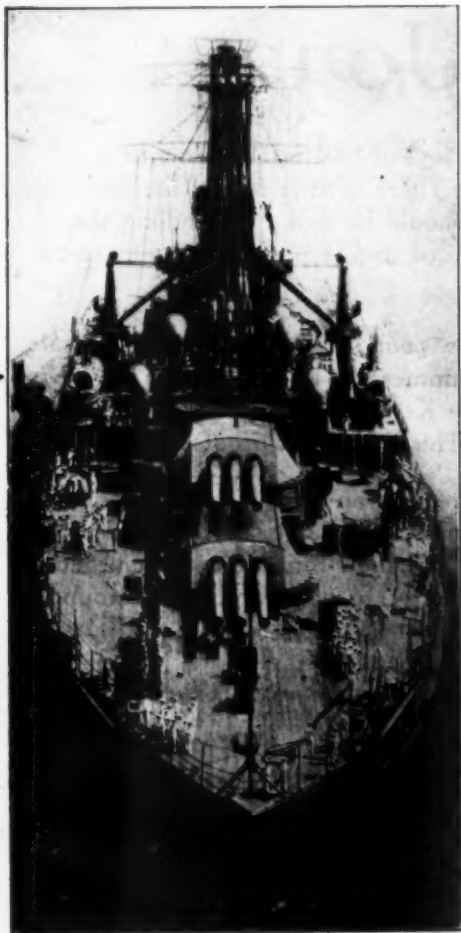


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Hints on Keeping the Motor in Shape

(Continued from page 31)

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PARAGON REVERSE GEARS



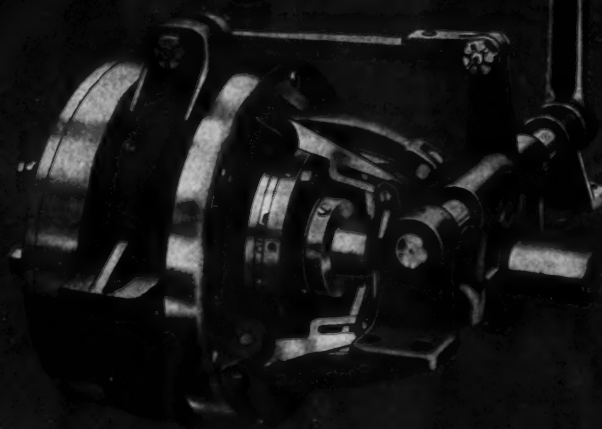
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Entire Valve Removed in A Minute!

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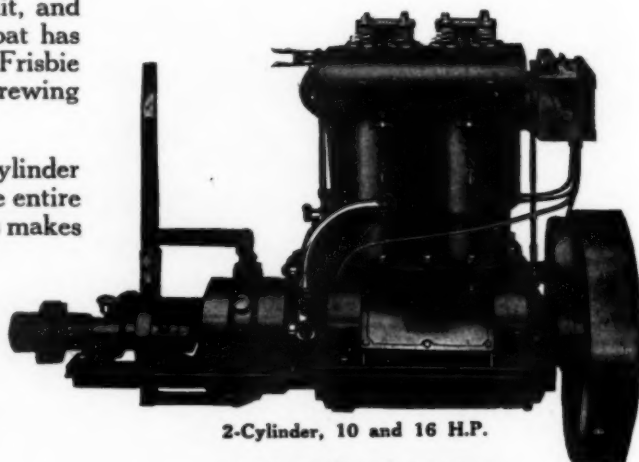
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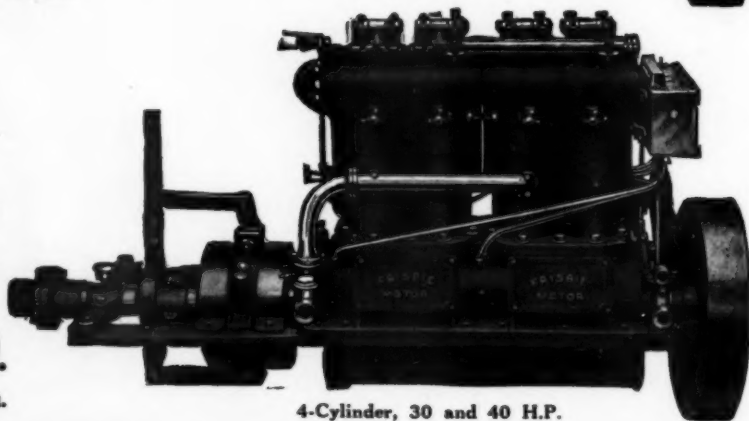
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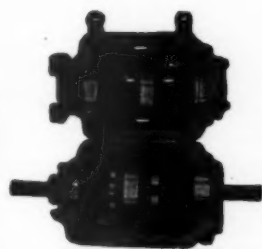
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THE ONLY BALL BEARING REVERSE GEAR

Johnson Ball Bearing Reverse Gears are neat, compact, light in weight, oil-tight, powerful and reliable.



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Investigate the Johnson today—your boat probably has every necessary equipment, but there may be some fault to find between the motor and propeller. Look into our improved ball-bearing reverse gear—distinctly original and easy to adjust.

The Johnson Reverse Gear is essential to the complete equipment of your boat—investigate.

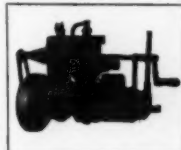
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2. Scandinavia: With, Sonesson & Co., Malmö, Sweden, and Copenhagen, Denmark.
3. Australia: Edwin Wood, Pty., Ltd., 231 Elizabeth St., Melbourne, Victoria.
4. France: Glaenger & Perreaud, 18 Faubourg du Temple, Paris.
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A trim little motor is this "BUD-E"

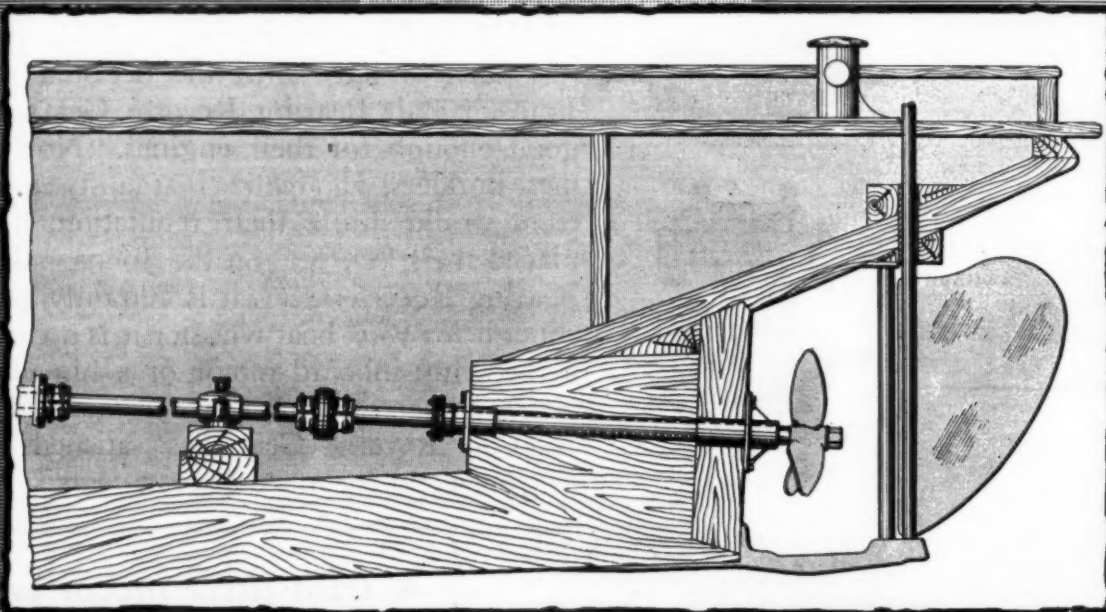
Since this motor was first exhibited in 1913, many have been sold. It is the prettiest, simplest, lightest and most compact unit power plant on the market—only weighs 110 lbs. Send for special catalog describing this motor.



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We will have caught up with all our orders June 1st. and will be able to make *immediate shipment* on all orders after that date, on our new Gray model "VM" kerosene and gasoline engine.

We now have this motor in production in greater volume than any like marine motor that has ever been produced. Our new plant has the capacity at the present time of thirty of these new "VM" motors every nine hours and you can depend on immediate delivery on receipt of your order from this date on.

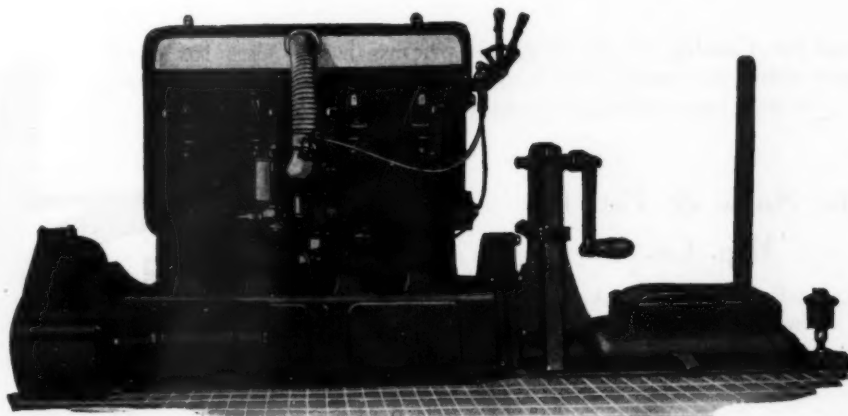
3½x5—4 Cylinder—20 to 25 H.P. runs efficiently at low speed for work on heavy boats as well as being sufficiently well designed and well built to run at high speed in fast boats.

The bearings on this motor are *big bronze back bushings* made of the highest quality of bearing metal it is possible to secure. The *lubrication system* is force feed to all main bearings by a positive direct acting oil pump and positive distribution to each one of the connecting rod bearings.

Our valve-in-head design gives you the greatest efficiency and is so recognized now by engineers of any type of motor built.

Our new cylinder head with its hot-spot construction, exclusively our own on which we have applied for patents, enables you to use the *lowest grade gasoline* or kerosene with satisfaction in this motor. It also enables you to throttle the motor and get efficient results at very low speed.

The motor cannot back-fire and set your boat on fire. You can have enclosed fly wheel or not, as you choose. Standard Electric Starters *FIT* the job without "tinkering".



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IT enables you to reverse from full speed ahead to practically full speed astern easily, smoothly, instantly. Compare this with other gears.

Joes Gear is made for every type of boat, but is especially effective on heavy duty work boats where shifts are frequent and the higher ratio of reverse speed most necessary, and often imperative. Joes Gear is built to stand the strain of constant shifting. It likes hard work, and responds positively and continually in the face of high seas and under heavy loads.

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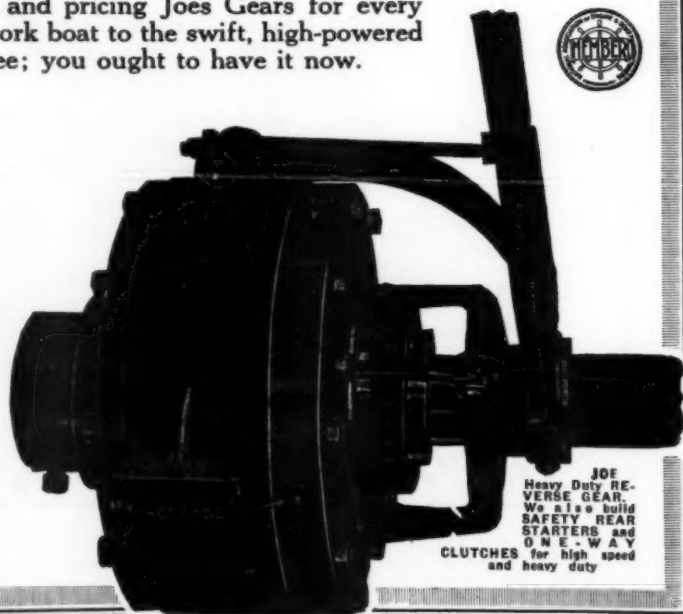
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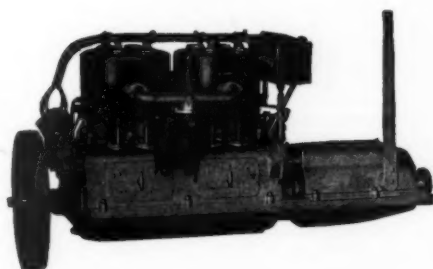


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ONE-WAY
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Engines****Square
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"THIS IS THE THIRD MACHINE OF YOUR MAKE THAT I HAVE IN USE;—THE FIRST ONE HAS BEEN IN COMMISSION TWELVE YEARS AND IS GIVING FIRST CLASS SERVICE AT THE PRESENT TIME, HAS NEVER COST ONE DOLLAR FOR REPAIRS NOR HAS EVER BEEN TAKEN DOWN".

The above is copied from a letter
received by us, dated May 1, 1919



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Wyman-Gordon Crankshafts

"Guaranteed Forgings"—forgings made by a manufacturer who is constantly guarding a world-wide reputation—those are the only forgings you can afford to use in your quality product.

Correctly designed and skillfully balanced, *Wyman-Gordon Crankshafts* are accurately marked for machining—this is a distinct saving to manufacturers. They are made from specially selected steel and are properly heat-treated.

Add to this our Dependable Service and you realize what "Guaranteed Forgings" mean to the Engine Builder.

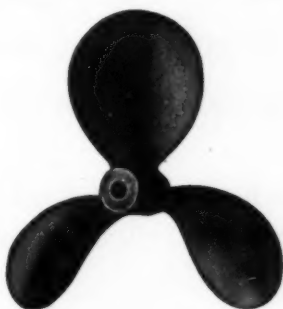
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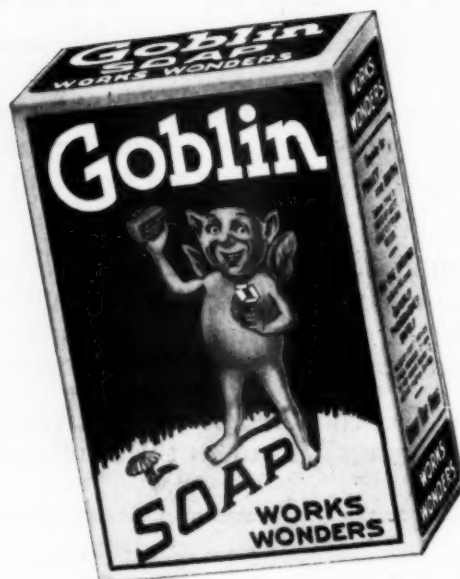
are designed to render full propeller efficiency on every type of hull. That they do produce maximum results is proven by the fact that the HYDE has for years dominated the propeller field throughout the country.

HYDE supremacy is well-founded, being based upon correct design, highest quality of material and superior workmanship.

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Catalog and data sheet upon request.

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Goblin Soap

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